cent, responsible for secondary cases (table 1). The rate was highest for patients less than 1 year of age, although their number is scarcely within significant limits. The infecting case rate is definitely high for children of 1 to 4 years (5.4 per cent), with 580 cases represented. The frequency continues relatively great among older children, but the age group representing young adolescent patients evidences a marked decline. Of 213 patients aged 15 to 19 years, none were proved responsible for other cases of scarlet fever.

TABLE 1.—*Infecting Cases According to Age Groups*

Age Group	Number of Cases	Infecting Cases	
		Number	Per Cent
Under 1 year	22	2	9.1
1 to 4 years	580	31	5.4
5 to 9 years	1,197	58	4.8
10 to 14 years	445	19	4.3
15 to 19 years	213	0	0.0
20 years and over	583	4	0.7
Total	3,040	114	3.7

An appreciable proportion (4.7 per cent) of patients under 15 years of age infected one or more of their contacts after release. Those over 15 years of age were responsible for relatively few secondary cases. The convalescent carrier state has been demonstrated bacteriologically to be less prolonged with adults than with children. It is also probable that the child returns to a relatively more susceptible group than do adults. An active factor in extending communicability is the presence of complications during convalescence. These conditions develop in children much more frequently than in adults.

Distinction might well be made between children with scarlet fever and adults with the disease, in respect to required isolation. Equally prolonged isolation appears illogical. The data suggest a required minimum of not more than three weeks. The practicability of a two week interval should be determined. A significant saving in hospital days would be effected for patients thus isolated. The individual's absence from employment would be less, and the advantage to those responsible for care and support of families, material.

No significant difference between the sexes was determined in respect to the likelihood of transmitting the disease.

FREQUENCY OF INFECTING CASES AMONG PATIENTS WITH SIMPLE AND WITH COMPLICATED SCARLET FEVER

Scarlet fever differs from most other communicable diseases in that complications are apparently due to the same infectious agent responsible for the acute stage of the disease. A patient released at the end of twenty-eight days without suppurative complications of the nose, throat or ears should therefore be less a menace to others than the patient in whom complications develop. Hemolytic streptococci have been found to disappear from the nose and throat much more rapidly when secondary pyogenic conditions are absent. Infecting cases are relatively few among simple cases. The number is more than twice as great when one of the three common complications, rhinitis and sinusitis, cervical lymphadenitis or suppurative otitis media, has developed during convalescence.

TABLE 2.—*Frequency of Infecting Cases Among Patients with Simple and with Complicated Cases of Scarlet Fever*

	Number of Cases	Infecting Cases	
		Number	Per Cent
Simple	1,904	45	2.4
Complicated	1,136	69	6.0
Total	3,040	114	3.7

BACTERIOLOGIC CONTROL OF SCARLET FEVER CONVALE NTS

The commonest control sures for scarlet fever demand a minimum isol period expressed in days' time from onset or d report, with provision for extension if complica occur. The effectiveness of this procedure was ed for one year as a control observation, the g being the usual one of infecting cases. Pati th an uncomplicated course were released at th of twenty-eight days. If complications d , with clinical recovery before the end of this per, the patients were likewise released at that time. When complications persisted, restriction was continued until clinical recovery; or until the fifty-sixth day, when the patient was released, irrespective of his condition.

Another year, patients without complications were released after twenty-eight days, but cultures for hemolytic streptococci were taken from the nose and throat on the twenty-fourth and twenty-fifth days. The presence or absence of streptococci was tabulated in relation to the number of patients who thereafte caused scarlet fever among familial contacts. Releas was permitted irrespective of culture report.

TABLE 3.—*Infecting Cases in Relation to Cultures for Hemolytic Streptococcus Taken at Time of Release*

	Culture	Number of Cases	Infecting Cases	
			Number	Per Cent
Simple	+	174	3	1.6
	0	1,638	40	2.4
Complicated	+	92	11	11.9
	0	1,011	56	5.5

In the event of complications, isolation was termi nated when two successive cultures from the nose, throa or other affected part were free from hemolytic strep tococci, and under certain circumstances at the end o fifty-six days. Continued isolation for complicate cases was thus placed on a bacteriologic rather than clinical basis, since the patient was released when th cultures became negative, irrespective of the clinica condition.

The relative value of bacteriologic control in simpl and in complicated cases is shown in table 3.

Relatively few patients with uncomplicated scarl fever (174 of 1,812) continued to have hemolyt streptococci in the nose and throat when released fro isolation on the twenty-eighth day of the disease.

The gross infecting case rate was 2.4 per cent. Th rate was essentially the same for the group who we carriers of hemolytic streptococci as for those wh were not. Present bacteriologic methods offer improvement over clinical methods in the control uncomplicated cases isolated for twenty-eight day However, the possibility exists that patients witho complications may be released at an earlier date wi safety. Serial culture studies during convalescence weekly intervals might justify a trial of a three week isolation program. An important reservation shou be made; namely, that absence of complications, pa ticularly of the nose, must be accurately determined by a physician experienced in scarlet fever.

By contrast, an essential difference was demonstrated for complicated cases, depending on whether hemolytic streptococci were present or absent when the patient was released. The infecting case rate was 11.9 per cent for ninety-two patients who still harbored hemolytic streptococci. The rate was 5.5 per cent for 1,011 patients whose release cultures were free from hemolytic streptococci. A definite measure of safety is provided when complicated cases are released by bacteriologic control. However, two successive negative streptococcus cultures do not provide a measure of control comparable with that of simple cases. Increased efficiency might be conferred through requirement of three negative cultures instead of two. Certain complications may be more satisfactorily controlled by a bacteriologic method, because proper specimens are more readily obtained.

RELATIVE IMPORTANCE OF THE SEVERAL COMPLICATIONS IN PROLONGING COMMUNICABILITY

Complications are not all of equal importance in prolonging communicability. A series of 1,136 patients having a complicated course was divided into four groups. The first group had, as the only complication, rhinitis and sinusitis; the second group, suppurative otitis media; and the third, cervical lymphadenitis. The last complication is of importance because of the usual relationship to prolonged or secondary infection of the throat. The fourth group included patients having more than one complication, largely combinations of the preceding three. The infecting case rates for these four groups are presented in table 4.

TABLE 4.—*Infecting Cases by Type of Complication*

Complication	Number of Cases	Infecting Cases	
		Number	Per Cent
Otitis media, suppurative..........	145	4	2.8
[illegible]	260	16	6.2
[illegible]	437	28	6.4
[illegible]	294	21	7.1
Total........................	1,136	69	6.0

The infecting case rate for patients having had rhinitis and sinusitis is greater than for any other group with a single complication. It is the largest group. Although representing only 14 per cent of all cases, it was responsible for 40 per cent of infecting cases. Cervical lymphadenitis ranks a close second; but, surprisingly, the patient with suppurative otitis media is scarcely more infectious than is the patient released after simple scarlet fever.

Rhinitis and Sinusitis.—Since patients with scarlet fever complicated by rhinitis are responsible for more secondary cases than any other group, a more intimate analysis of this particular complication was made.

This complication by no means constitutes an entity. One large division includes patients with nasal discharge associated with primary involvement of the sinuses. A second group includes patients in whom there developed a rhinitis corresponding to a coryza of the common cold type. Hemolytic streptococci were almost invariably associated with the first group, uncommonly with the second. The two are sufficiently distinct clinically and pathologically to suggest significant differences in ability to transmit the disease after release from isolation.

TABLE 5.—*Clinical Forms of Rhinitis Observed During Scarlet Fever Convalescence*

Type of Nasal Condition on Release	Number of Cases	Infecting Cases	
		Number	Per Cent
1. [illegible]	116	17	14.7
[illegible]	149	13	8.7
[illegible]	261	13	5.0
[illegible]	97	3	3.0
2. [illegible]	398	10	2.5

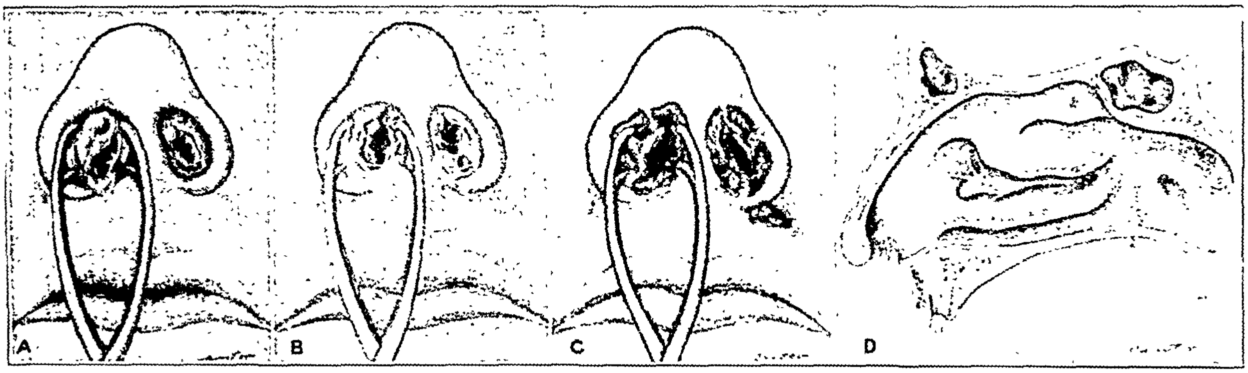

Fig. 1.—Rhinitis and sinusitis of scarlet fever convalescence: *A*, active purulent discharge; *B*, seropurulent discharge; *C*, crusting of internal and external nares; *D*, mucopus on turbinates, no discharge.

Infecting cases occurred in greater number among patients having rhinitis of the type first described than in any other group of scarlet fever convalescents of this series. The condition may be termed rhinitis and sinusitis of scarlet fever convalescence. Four clinical subdivisions were made, dependent on the duration of the process (fig. 1).

Rather striking differences exist, in respect to secondary cases, depending on the particular stage of the process at the time of release. The active condition (fig. 1 *A*) represents a high degree of communicability; the last stage (fig. 1 *D*) is scarcely more important than the simple uncomplicated case.

Bacteriologic examination of the secretion for hemolytic streptococci serves to corroborate clinical judgment in differential diagnosis. Patients of type 1 can be released with safety only after clinical recovery or after freedom from discharge and from hemolytic streptococci in cultures. The bacteriologic method alone is not adequate. Even with two negative cultures, infecting cases were frequent.

The most common form of nasal disorder was clinically a coryza of the common cold variety, type 2 (fig. 2), showing a thin serous discharge of relatively short duration. Often entire hospital wards are involved, evidently representing transmission of a secondary virus. Cultures from the secretion were usually free from hemolytic streptococci. Cases presenting this complication represented 40 per cent of all nasal conditions, and yet the infecting case rate was only 2.5 per cent, essentially the same as that observed for patients with no abnormal condition of the nasal passages (2.4 per cent). Prolonged isolation because of this complication appears unjustified.

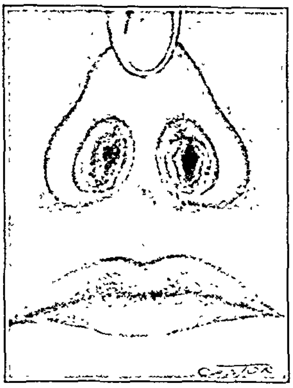
Fig. 2.—Coryza of common cold type in scarlet fever convalescence.

Suppurative Otitis Media.—Patients having purulent discharge from the ears in no way approach in importance those with similar involvement of the nasal passages (table 4). Only 4 among 145 cases became infecting cases (2.8 per cent). Most of the group were released with discharge from the ear still present, but free from hemolytic streptococci. Only one caused another case of scarlet fever. When hemolytic streptococci were demonstrable, the infecting case rate was as high as that for patients with rhinitis. Long continued isolation of patients bacteriologically free from hemolytic streptococci appears unnecessary.

Cervical Lymphadenitis.—The causal relationship between secondary angina and enlarged cervical lymph nodes is not fully appreciated. Hemolytic streptococci usually remain on the mucous surfaces of the pharynx. The infecting case rate is high. A measurable degree of safety is conferred by assurance that patients with this complication are free from hemolytic streptococci before they are released.

Table 6.—*Relative Importance of Clinical Discharge and Presence of Hemolytic Streptococci at Release*

Complication	Purulent Discharge	Hemolytic Streptococci	Number of Cases	Infecting Cases Number	Infecting Cases Per Cent
Rhinitis	+	+	20	1	5.0
	+	0	204	17	8.3
	0	+	4	1	25.0
	0	0	203	8	3.9
Otitis media	+	+	18	1	5.5
	+	0	68	1	1.5
	0	+	2	0	0.0
	0	0	50	1	2.0
Cervical adenitis	+	+	0	0	0.0
	+	0	12	3	25.0
	0	+	16	2	12.5
	0	0	225	11	4.9
Multiple complications	+	+	25	5	20.0
	+	0	150	14	9.3
	0	+	5	1	20.0
	0	0	101	1	1.0

Multiple Complications.—In a single patient, more than one of the conditions mentioned, or indeed all three of them, may develop during convalescence. Under such conditions the carrier rate is much increased, particularly if rhinitis and sinusitis are represented. The infecting case rate is high.

The relationship between clinical and bacteriologic control methods is shown in table 6.

SEASONAL PREVALENCE OF INFECTING CASES

Physicians experienced in the clinical management of scarlet fever readily appreciate the seasonal variation of complications during winter and spring months. Complications have been emphasized as the dominant factor in infecting cases. The suggested variation in infecting cases was corroborated by figure 3.

The first six months of the year showed a rate well above the annual average. The greatest frequency occurred during March and May, and the rate dropped to a low level during July to September. When a curve of complicated cases was plotted by months, it was found largely to coincide with the distribution described. The presence of complications is not the only factor in this seasonal variation, because the rate for uncomplicated cases follows the same trend.

COMMENT

The efficiency of two methods for release of patients after scarlet fever has been studied. One method represented accepted practice—an isolation period of twenty-eight days for uncomplicated cases and release of patients with complicated cases thereafter on clinical recovery, with a maximum restriction of fifty-six days. The second method included the same minimum requirements for uncomplicated cases, but patients with complications were released when two successive cultures from the affected part were found free from streptococci. The infecting case rate was essentially the same under the two conditions.

The bacteriologic control possessed the advantage of prescribing an isolation better suited to the requirements of each individual patient. This method materially reduced the average period of isolation. The gain was entirely in the group having complications, patients ordinarily hospitalized for the longest periods. Simple uncomplicated cases, because of present legal requirements, showed no variation.

The patient with complications is responsible for most secondary cases. Attempted control by cultures for hemolytic streptococci gave results in no way comparable to the rate established by simple infections. The method possesses the value of generally decreasing the required period of isolation. The number of hospital days was appreciably less when patients were so released, and the results were essentially as good from the standpoint of infecting cases.

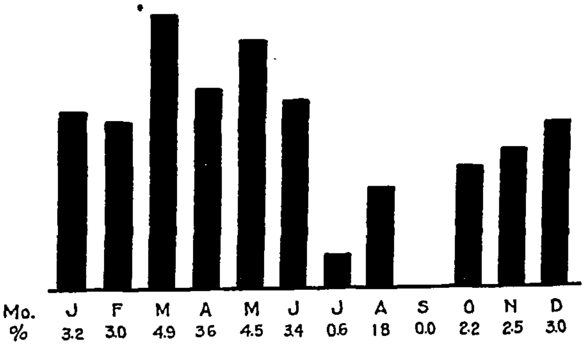

Fig. 3.—Seasonal variation in percentage of infecting cases; 1930 series, 1,948 cases; total infecting rate, 3.3 per cent.

An appreciable gain was thus made in respect to time lost from employment or from school. Patients with certain complications were safely released before complete recovery. From a clinical standpoint, this is no small consideration. Chronic suppurative conditions are more likely to progress favorably with outdoor exercise and lessened restriction of activity.

Epidemiologic data of particular value have been made available as a result of release on a bacteriologic basis. The general reliability of the method varies with the kind of case and the kind of complication. No advantage seemingly results from requiring negative cultures of simple cases at the end of twenty-eight days. The infecting case rate was not greater for those proved carriers than for patients free from the infectious agent. The outstanding position of the complicated case as the chief problem in the control of scarlet fever has been demonstrated. Certain complications are more likely than others to disseminate the infection. In order, rhinitis and sinusitis rank first, followed by secondary throat infections and suppurative otitis media. The latter complication under bacteriologic control is no more a source of danger than the simple uncomplicated case, and patients may be safely released before clinical recovery. Clinical classification has demonstrated that certain forms of rhinitis are without particular hazard; others are extremely likely to result in secondary cases.

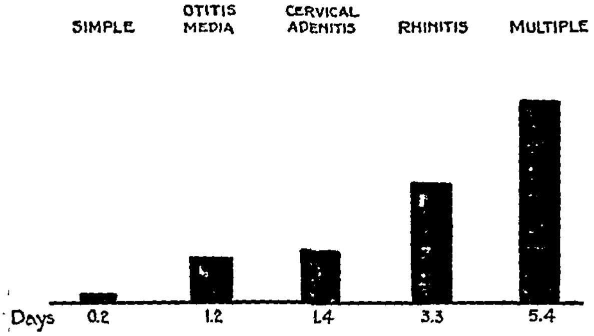

Fig. 4.—Comparison of clinical and time vs. clinical and bacteriologic methods of control (1927-1929). The average saving in hospital days per patient by complication is shown. The incidence of infecting cases was approximately the same for the two years.

Evidence has accumulated to show that patients of the older age groups could very safely have been dismissed at an earlier period. During certain times of the year the secondary case rate was materially lower. The practicability of shorter periods of isolation during late spring and summer should be further investigated.

CONCLUSIONS

This study indicates the existence of significant clinical differences among patients, permitting practical modification of isolation. This approach to the problem is suggested by the precept of individual consideration, from the acute stage through convalescence to release. The evaluation of communicability by clinical methods, including laboratory procedures, gives promise of more adequate and more equalized control.

Herman Kiefer Hospital.

ABSTRACT OF DISCUSSION

Dr. Milton J. Rosenau, Boston: I think that scarlet fever is a beautiful example to release one from the unfortunate situation in which one sometimes falls by drifting along the easier methods. Here is a disease that varies in time, in place and in accordance with the age and many other factors. If that is so, if the disease varies with the latitude, with the seasons of the year, in different age groups, and so on, why should not the quarantine restrictions, the isolation, the release and all the other public health measures adapt themselves to these variable factors which are known? There is no reason why the health officer in Florida or Alabama should apply the same restrictions to the control of scarlet fever in those localities as are applied in Connecticut, in Massachusetts, or in Michigan, where Dr. Gordon works. The same is true of summer and winter. We have little fear and there is little danger of scarlet fever spreading in the warm weather; why, then, could not the restrictions be relieved for six, seven or more months during the year, much to the advantage of the health officer, and so on? The same thing is true for the age group that we have seen. There is the difference in susceptibility, in the danger of spread, and in the menace of this infection in the different age groups. *Therefore, not only by individualizing but by applying the* knowledge we have of this disease and other diseases, with more precision in our public health administration based on a sound knowledge of epidemiology gained from facts such as we have just heard, I think that we shall be able to make progress along sound lines. I am favorably impressed with the yardstick that Dr. Gordon has used; that is, not taking the number of returned cases as a measure of the accuracy of the processes used, but the infecting cases, for, after all, infection is the important thing to consider in the control of this and any other disease.

Dr. Edward S. Godfrey, Jr., Albany, N. Y.: The same thought came to me that came to Dr. Rosenau, of the difficulties of investigating a disease such as scarlet fever, in which there are legal restrictions on the period of isolation that make it practically impossible for any one to determine the minimum period at which it is safe to release a patient. One must keep one's patients isolated for a certain period and is therefore unable to test the effect of a shorter period. It is a good thing that we have varying periods of quarantine in different parts of the country; to that extent at least we can see whether or not there is any substantial benefit from the longer periods. I agree that the infecting case rate is the proper rate to determine the efficacy of the release methods, provided due consideration is given to the composition of the family to which the child returns. It is obvious that if a child goes back to a family in which there are no children there are not likely to be any return cases. If an adult is attacked, it is usually after the children have been infected, and he returns to a home in which all are immune. In his chart on multiple complications, Dr. Gordon did not specify how many patients had rhinitis as one of the complications. It seems to me that a patient with nasal discharge is much more liable, even than the chart shows, to transmit the disease than one with throat or ear discharge, for the former patient gets the fingers soiled with nasal discharge. I think that Dr. Gordon ought to specify in his table the frequency of infecting cases among those having rhinitis as one of the multiple complications, as compared with those not having it. I have frequently observed that patients released from the hospital without discharge and discovered later to have caused return cases will be found, on careful inquiry, to have had a return of discharge after their release from the hospital or from quarantine. I should like to know whether that has been observed by Dr. Gordon in his cases. Finally, I think that we all ought to observe our cases more carefully and to collect figures, as Dr. Gordon has done, so that we may arrive at something like a scientific control of scarlet fever.

Dr. A. Clement Silverman, Syracuse, N. Y.: I agree with Dr. Gordon on the influence of season on scarlatinal complications and on the incidence of infecting cases. I find it much easier in the summer months to release my patients at the end of thirty days, which is the minimum legal isolation period. At other times I find that I often have to keep them six and seven weeks because of the appearance of the mucous membranes. I have found it much less easy to differentiate between simple coryza and sinusitis. For nearly two years my associates and I have been carrying on a study in which practically every one of our pediatric patients in the scarlet fever service has had the paranasal sinuses roentgenographed. Of 159 patients roentgenographed up to April, 1931, only 8 showed normal paranasal sinuses. Frequently, to be sure, the children showing dulness or haziness in their roentgenograms do not give any evidence of nasal discharge but show increased redness of the nasal mucous membranes, and many are entirely negative clinically. So far, we have not had an opportunity to study a control group of children in our locality who did not have scarlet fever. In the beginning of this study, it was hoped that the roentgenographing of sinuses might give us an opportunity to pick out those liable to become infecting cases; this evidently does not appear to be working out, although in one instance in which the mucous membranes looked normal clinically and the roentgenogram showed marked clouding of one antrum, the child apparently gave rise to a "return" case. It is perhaps worth emphasizing that a scarlet fever case may properly be counted as a return case only if it occurs from three to ten days following the arrival in the home of a patient discharged from the hospital. Nevertheless, it is often found that when the disease is very prevalent a great deal of opportunity for independent exposure may be present in the neighborhood and wrongly charged to the child returned home from the hospital. It would be interesting to have the age distribution in the return cases. I wondered whether the high percentage of infecting cases in the first year might not be due to the close association of mother and baby, if the mother is the person who is most commonly infected. It is obvious, of course, that the number reported in this age group is too small for significant percentage computation.

Dr. P. F. Lucchesi, *Philadelphia:* In reference to infectiousness, was desquamation considered in these cases? Were the cases of reinfection considered in this group and how long after the reinfection did you quarantine the patients?

Dr. J. E. Gordon, Detroit: Actual alteration of isolation under field conditions has been practiced in Detroit on the basis of differences among age groups. Adult patients are released after three weeks, and children after four. The frequency of infecting cases has been no greater than when all patients were released after isolation for four weeks. Investigations directed toward determining minimal isolation and quarantine requirements for scarlet fever are being conducted under the auspices of the Committee on Administrative Practice of the American Public Health Association. Information regarding unusual kinds of regulations is desired. We are particularly interested in unusual outbreaks of scarlet fever. Isolation and quarantine in significant geographic parts of the United States are being studied, that a general idea of the requirements for this disease may be determined. The age of contacts has been correlated with the number of secondary cases. The number of contacts probably immune has been determined by a history of previous scarlet fever and by Dick tests. Rhinitis was by far the most common element among patients having multiple complications. Exact data have been obtained of all combinations comprising this group included under multiple complications. I like Dr. Godfrey's statement in relation to the importance of rhinitis as an agent in transmitting scarlet fever. Clinically distinct differences among patients with rhinitis have been determined in relation to the likelihood of transmitting the disease. The two forms of rhinitis were distinguished on the basis of clinical studies and by bacteriologic methods. The coryzal form is regularly free from hemolytic streptococci and exhibited a distinct tendency epidemiologically toward ward and familial outbreaks. Desquamation has not been considered a pertinent factor in communicability.

Disease States Can Never Be Identical.—Just as no two human beings are precisely alike, not even twins from the same ovum, so two disease states can never be identical, even though they are produced by almost indistinguishable agents. Similarities do exist between disease states as well as between human beings. This is most noticeable in twins, quite common in families, not rare in communities, unusual between nations and most divergent in different races. A single anatomical feature, too, a peculiar mode of thought, a simple physiological process or an isolated pathological lesion may seem to be exactly the same in two different individuals; but each complete personality, each state of disease, is unique. When disease is regarded from this point of view, the slightest departure from the wholeness of health may produce a profound and lasting effect; for the significance of the injury may depend, not so much on its physical result, as on the interpretation that the patient gives it. —Longcope, W. T.: Methods and Medicine, *Bull. Johns Hopkins Hosp.* **50**:4 (Jan.) 1932.

SENSITIZATION DERMATOSES OF NONFUNGOUS NATURE

FOLLOWING SUPERFICIAL FUNGOUS INFECTIONS ("RINGWORM") OF THE EXTREMITIES *

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AND
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The recent original observations and investigations of Williams[1] in demonstrating that certain eruptions on the hands were a mycotoxic manifestation of distant active fungous foci has illuminated the mechanism of many heretofore etiologic puzzles. Williams called them dermatophytids, and numerous other subsequent publications have amply confirmed his original observations. One of us (C. W.) has recently observed a series of cases (eighteen) in which it appeared that an eruption of the glabrous skin of the body occurring either immediately or a short time after a flare up of fungous infection may occasionally be due to sensitization to substances other than circulating fungi or fungous toxins; the skin had apparently been rendered sensitive by the superficial fungous infection.

Williams was the first to advance the theory that hand lesions resulted from dissemination of fungi or their products from foci on the feet. Further investigations by Walthard,[2] Jadassohn[3] and Peck[4] have shown that (*a*) systematic cultures from the feet and hands were generally positive only from the feet; (*b*) the lesions on the hands generally appeared subsequent to those on the feet and sometimes followed irritation of the foci on the feet, and (*c*) the skin of patients with lesions of the feet and hands was practically always hypersensitive to intradermal injections of trichophytin. Sulzberger[5] felt after much observation and work that the probable mechanism, at least in a great many cases, was as follows: The fungi coming from the feet circulate in the blood and arrive in the allergic skin of the hands. Having arrived there, they are rapidly destroyed. It is for this reason that even after repeated careful searching, with the best possible technic, in almost all cases it is still impossible to find fungi in the hand lesions.

Although it has been demonstrated that superficial invading fungi can actually invade a lymph node and be grown in culture,[6] still one of us (C. W.) has never grown a positive blood culture for fungi after many attempts in some sixty cases. Peck was able to procure a positive blood culture in one case.

Infection of this nature on the hands has been classified into three groups:[7] (*a*) secondary to foot foci as originally described by Williams, (*b*) definitely

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* From the Departments of Dermatology and Allergy, Northwestern University Medical School.

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* Read before the Section on Dermatology and Syphilology at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 10, 1931.

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[2] Walthard, Bernhard: Dermat. Ztschr. **53**:692 (April) 1928.

[3] Jadassohn, Werner; and Peck, S. M.: Arch. f. Dermat. u. Syph. **158**:16, 1929.

[4] Peck, S. M.: Klin. Wchnschr. **29**:1357 (July 16) 1929.

[5] Sulzberger, M. B.: Allergy in Infectious Diseases of the Skin, M. J. & Rec. **131**:264 (March 5) 1930.

[6] White, Cleveland: Mycotic Inguinal Lymphadenitis Associated with Superficial Fungus Dermatitis of the Feet, Arch. Dermat. & Syph. **18**:271 (Aug.) 1928.

[7] White, Cleveland: Superficial Fungus Infections of the Skin, M. Clin. North America **14**:1169 (March) 1931.

infected ones from fungi, possibly from foot foci by external circuits, or (*c*) primary hand infection with or without secondary foot involvement. A fourth group, we think, can now be added; viz., dermatitis due to some chemical or at least nonvital substance in conjunction with an active fungous infection, say on the feet. This possibility may explain the absence of fungi in some cases. This classification excludes the bacterial dermatoses which Mitchell[8] has described; and a recent case[9] studied apparently confirms these observations.

It is our aim in this paper to illustrate the basis for assuming this fourth group. This is a group in which, essentially, the fungus is only a predisposing factor, inducing what amounts to a hyperallergy. The following case reports are given to demonstrate specifically that the patients became sensitive to these substances only subsequent to the fungous attack; furthermore, that the fungous attack was unequivocally a new one (or had become decidedly active for the first time) and had not been obtained at previous dates when the patient had been subjected to these various substances. It is believed in these particular cases that the conditions in the patients were such that the symmetrical eruption on hands and the like would not have come out unless they had had elsewhere an active superficial fungous infection.

REPORT OF CASES

CASE 1.—*Original fungous infection on foot; sensitiveness to cottonseed oil.*

Mrs. H. R., aged 30, a housewife, admitted to the clinic, Oct. 17, 1928, had had an eruption on the right foot and on both hands for six years; the eruption appeared first on the plantar surface of the right foot and was considered a fungous infection. She said she had been treated by a dermatologist spasmodically for several months but had become unable to pay even moderate fees and was referred to the clinic. Dr. Stillians saw the patient several times and considered the eruption to be a ringworm infection. General physical examination was negative with the exception of a scar on the neck and large cryptic tonsils. The important item in her history was a thyroidectomy six years previous to admission.

The urine test was negative; the basal metabolic rate was within normal limits. Serologic examination of the blood was negative and the blood count was normal. Roentgen examinations of her teeth were negative.

When seen on June 6, 1929, she had an acute flare up on the hands and, because of the previous fungous infection, was restudied through the kindness of Dr. Stillians. At this time she had a typical clinical ringworm infection on the plantar surface of the right foot consisting of a group of deep seated vesicles. Hyphae were recovered by the usual potassium hydroxide digestion method; cultures were all negative. Blood cultures for fungi were negative during this and succeeding exacerbations. The eruption on the back of the fingers, hands and wrists was a diffuse erythematous one with considerable edema on the flexural surface of the arms and forearms but, curiously enough, did not fit in well with our numerous previous cases of either dermatophytids or actual fungous infections (e. g., with cryptococci in antecubital cases, as mentioned by Charles J. White and J. H. Swartz[10] in their comprehensive report, and by Cleveland White[11]).

Further inquiry revealed that the patient had embroidered with silk previous to this flare up, but testing with silk (contact and scratch methods) and a host of other possible substances (S. J. T.) was completely negative. Soothing applications soon produced a clinical cure of the forearms as it had done in previous attacks. It was still considered as a dermatophytid; nevertheless, additional tests were performed. Histamine tests in the circulatory clinic at Northwestern University by Dr. Géza de Takáts were negative and a repetition of the basal metabolism test again gave figures within normal limits.

The patient was seen several times within the next year with an occasional mild relapse of ringworm of the foot and flare up on the flexures of the arms and on the fingers from time to time. In the fall of 1930 she appeared with an acute erythematous flare up on the hands and arms as previously described and also on the sides of the neck and legs. This time, however, there was no discoverable activity on the feet; we felt that this practically eliminated its being primarily a dermatophytid and that it must be a sensitization eruption. A large series of tests was now performed with cottonseed oil strongly positive. All other substances were negative.

Thereafter, the patient's regular diet was maintained with the exception of all articles containing cottonseed oil. Further questioning revealed that, as far as she could remember, she had placed cottonseed oil in cake before each attack. (It had been eaten many times before the original ringworm eruption and had produced no disturbance.)

Elimination of the cottonseed oil has produced a clinical cure, and she has been followed closely to date. Fungicidal preparations are used occasionally on the feet as a prophylactic measure; clinically and microscopically the fungous infection has completely disappeared.

CASE 2.—*Ringworm of the finger and nail; sensitiveness to oatmeal.*

A school girl, aged 12, had had a fungous infection of the right index finger for several weeks, with many small thick roofed vesicles on the sides of the fingers. Hyphae were found on potassium hydroxide preparation, and eventually, on culture, *Trichophyton interdigitale* was grown. The condition on the finger was somewhat slow in responding to therapy but at the end of six weeks was practically healed. While the same preparations were being used, a discrete patchy erythematosquamous eruption appeared on all extremities.

Because of previous experience in this type of case, a sensitizations factor other than fungus was suspected. Examination of the secondarily affected areas resulted negatively for fungi; a blood culture was not taken because the patient objected.

Inquiry into the diet disclosed that she had begun to eat oatmeal the past few days (fall of the year) and that she had eaten oatmeal every winter for many years. Elimination of oatmeal from the diet produced a clinical cure. The fungous infection completely healed after several more weeks of treatment.

CASE 3.—*Fungous infection of foot; sensitiveness to buckwheat.*

A woman, aged 21, a college student, had had ringworm of the toes and plantar surface of her left foot for several months. When first observed, the patient said the condition was considerably better and improving, but she wanted advice as to a symmetrical patchy eczematous eruption on the back of her hands, forearms and thighs.

A few hyphae were found from the foot after considerable search; cultures were negative. As the fungous infection was undoubtedly improving and the secondary eruption of only a few days' standing, it was felt that the latter was due to some other cause.

Skin tests of many substances showed only buckwheat to be strongly positive. Further questioning revealed that she had started eating buckwheat cakes just previous to the last eruption. She had eaten them in other years with impunity.

CASE 4.—*Original infection on scalp; sensitiveness to silk.*

A high school girl, aged 15, had had an eruption on her face for one year and, according to her history, had received a great many roentgen treatments in that time. When first observed, the face was erythematous and edematous; the itching and burning was most intense. The scalp had many patchy, dry, scaling areas, fitting into the clinical diagnosis of seborrheic dermatitis.

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[8] Mitchell, J. H.: Amycotic Dermatoses Simulating Ringworm and Erosio Interdigitalis Blastomycetica, Arch. Dermat. & Syph. **19**: 659 (April) 1929.

[9] White, Cleveland: Superficial Bacterial Infection of the Hand, Simulating Epidermomycosis, Arch. Dermat. & Syph. **23**: 371 (Feb.) 1931.

[10] White, C. J., and Swartz, J. H.: Cryptococcosis Epidermica, Arch. Dermat. & Syph. **18**: 692 (Nov.) 1928.

[11] White, Cleveland: Superficial Yeast Infections of the Glabrous Skin, New York State J. Med. **27**: 1116 (Oct. 15) 1927; Further Clinical and Experimental Studies, Arch. Dermat. & Syph. **18**: 429 (Sept.) 1928.

The important observations in her history were that there were marked exacerbations on her face especially after attending dances, and that for a month previous to the onset of the face involvement she had had scaling areas in the scalp.

Skin tests were at once performed and she was found strongly sensitive to silk. Discontinuation of wearing silk and then desensitizing with silk has produced a clinical cure, combined with treatment to the scalp. Cultures from the scalp scales yielded *Monilia;* fungicidal therapy has clinically cleared that area.

Although various fungi and bacteria are believed to cause scaling dermatoses in the scalp, and although there are some who do not believe in the infectious origin of many cases of so-called seborrheic dermatitis, we felt justified in calling the scalp manifestation a superficial fungous infection. With extension to the face and eyelids and other structures, the skin there became sensitive to silk. At least, the findings, observations and therapeutic response would indicate such a possible theory. This case was cited because of its close association with other superficial fungous infections besides on the extremities, where the first observations were made.

In other cases, tomato was found as the offending substance in two, milk in one and chocolate in another. In several cases, multiple sensitization was elucidated.

TECHNIC OF SKIN TESTING

It is now generally conceded that many diseases are caused by sensitization to some protein, either epidermal, furs, food, pollen, bacteria or a miscellaneous group, such as orris root, pyrethrum, silk, kapok and cotton. We know that sensitization to one or more of these proteins may cause asthma, hay-fever, urticaria, eczema, angioneurotic edema, migraine and colitis. This sensitization or hypersensitiveness is determined by simple and painless skin tests.

There are four methods in use for performing these tests. First, the cutaneous or scratch test, which consists of making small linear cuts into the epidermis about one-eighth inch long and one inch apart, care being taken not to cut deep enough to draw blood. The forearms are usually selected for the scratches, but the back and thighs may also be used. A Graefe eye knife or any dull scalpel or even a large needle can be used to make the scratches. A small amount of the powdered protein is then placed on each scratch with the flat end of a tooth pick and a drop of tenth-normal sodium hydroxide is placed on the protein and rubbed in with the sharp end of a tooth pick. It is allowed to dry and after twenty minutes is wiped off with water and the reactions are read.

The second method is the intracutaneous or intradermal test, which is done by the injection of 0.05 cc. of the dissolved protein into the skin, raising a small wheal. This method is used when the scratch tests are all negative and in patients suspected of pollen, dust, animal emanations and other miscellaneous sensitizations. Fatal results occasionally occur with the intradermal tests, especially in patients with asthma or hay-fever who are extremely sensitive, or severe systemic reactions may occur. Therefore, it is not wise to use this method as a routine measure.

A third method which can be used to determine hypersensitivity is that of the passive transfer technic; blood is withdrawn from the patient and centrifugated at high speed. The serum is injected intradermally in a nonsensitive individual and skin tests are made over these areas. A positive test consists of an urticarial wheal, or, at times, an erythema occurring usually within five to thirty minutes. Delayed reactions may occur from eight to twelve hours later, particularly in food hypersensitiveness. About 200 of these proteins, exclusive of pollens, are available for testing each case of allergic disease.

A fourth method, the so-called patch test, is now being used with considerable help in discovering the cause of some obscure cases of dermatitis venenata. The method is extremely well illustrated in a recent paper by Sulzberger and Wise.[12] These various methods are detailed in a preliminary way on account of the application they may have in our problems in dermatophytosis.

SPECIAL ALLERGIC PHASES

1. *"Multiple" Sensitization.*—In a previous communication, one of us[13] reported an asthma caused by canary feather protein and an eczema caused by silk[14] in one and the same patient. Incidentally, such cases emphasize the importance of making a sufficiently varied set of tests on each patient and of not being content with the more common substances. This is called multiple sensitization; i. e., sensitization to any two or more *unrelated* substances.[15] This is different from "group" sensitization. Thus, patients who react to timothy pollen[16] usually react to other members of the *Gramineae* group, as red top grass, June grass and orchard grass. Likewise, patients reacting to the pollen of ragweed will usually also react to other members of the compositae, such as giant ragweed, sunflower and cocklebur. Brown[17] has named these "group reactions"; they are due to a similarity in the structure of the protein molecule.

2. *Balanced Allergy.*—There is yet another phase of allergy that may enter into the "dermatophytid" problem. A person may be sensitive to some protein, such as a food with which he comes in frequent contact, and yet remain free from symptoms. Peshkin and Rost[18] and Rackemann[19] have found that about 10 per cent of children without symptoms of allergy are sensitive to one protein or another. They are allergic but are held in equilibrium; the terminology "balanced allergic state" has been advanced by Vaughn.[20] In it tissues are able to handle a given amount of the allergen without upsetting the allergic balance; desensitization from eating small amounts of the allergen may be a factor in deferring symptoms. An overdose, now, of the allergen will upset the equilibrium with an onset of symptoms. One may be sensitive to two proteins, maintaining allergic balance while the contact is with only one but developing symptoms on exposure to both (summation effect). Hay-fever, asthma, urticaria and dermatitis subjects frequently show multiple sensitiveness.

COMMENT

The suggestive causative rôle of the original fungous infection in the genesis of a secondary sensitization phase has become easier to recognize as more cases have been observed and analyzed. It is readily admitted that there are a great many cases of "ringworm" of the hands and feet; only a few are accompanied or followed by a symmetrical eruption produced, fortuitously, by an extraneous substance. However, the same may be said of dermatophytid; only a few of the bona fide superficial fungous infections are accompanied by what are commonly accepted as dermatophytids. And, of course, from the opposite angle many cases of eczematoid dermatitis of the hands have been found sensitive to many substances in which there was no evidence of a previous active fungous infection.

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[12] Sulzberger, M. B., and Wise, Fred: The Contact or Patch Test in Dermatology, Arch. Dermat. & Syph. **23:** 519 (March) 1931.

[13] Taub, S. J.: Some Unusual Cases of Protein Sensitization, Illinois M. J. **53:** 272 (April) 1928.

[14] Taub, S. J.: Allergy Due to Silk, J. Allergy **1:** 539 (Sept.) 1930.

[15] Taub, S. J.: Multiple Sensitization in Allergic Diseases, Illinois M. J. **57:** 287 (April) 1930; The Diagnosis and Treatment of the Allergic Diseases, M. Clin. North America **14:** 1303 (March) 1931.

[16] Taub, S. J., and White, Cleveland: Urticaria Due to Grass Pollen, J. Allergy, April, 1931.

[17] Brown, G. T.: Multiple Sensitization in Bronchial Asthma, Report of Cases, Ann. Clin. Med. **5:** 893 (March) 1927.

[18] Peshkin, M. M., and Rost, W. L.: Incidence of Protein Sensitization in Normal Child, Am. J. Dis. Child. **23:** 51 (Jan.) 1922.

[19] Rackemann, G. M.: Am. J. M. Sc. **163:** 87 (Jan.) 1922.

[20] Vaughn, Warren: Pollinosis: Constitutional and Focal Factors, Arch. Int. Med. **40:** 386 (Sept.) 1927.

In discussing the mosaic fungus, Williams[21] summarized quite succinctly the present status of toxic manifestations of superficial fungous infections. In part, he states that a dermatophytid is explained as the reaction of a sensitized skin either to organisms or to their toxins: the sine qua non in this explanation is the assumption of a preliminary sensitization of the skin. Further, he states that other facts point to the altered reaction of the skin as one of the most important factors in this disease. In many typical cases, a large proportion of the lesions on the feet contain the organism in scanty numbers or not at all, while in severe cases the finding of the organism is often excessively difficult or impossible. Some of the severe cases are accompanied, at or near the site of the original infection, by a severe but superficial dermatitis, which is usually sterile. The altered reaction of the skin, therefore, expresses itself in two ways: first, by hypersensitiveness to the poison of the disease and a variety of types of inflammatory response and, second, by a more or less complete destruction of the organism. Going further, Williams mentions the possibility that allergy in tinea may not be transient and may not disappear when the supply of toxin ceases, and that the reaction of the skin to external irritants may be permanently altered. All in all, he feels that the work of recent investigators has thrown considerable light on the problem; but much remains to be done. In theorizing the possibilities here, Sulzberger and Lewis's[22] observations are decidedly instructive and subjective. They say:

> The fact seems established that products of fungi are capable of causing an eczematous eruption in a hypersensitive skin. This seems important not only for the understanding of the pathogenesis of dermatophytids of the hands but also because it demonstrates that the products of other microorganisms may be capable of producing eczematous eruptions in hypersensitive persons.

All the foregoing points bring up a most probable clinical occurrence; viz., that in some people who have fungous infections the skin is so altered that it becomes sensitive to certain foods, external irritants, and the like, to which no previous clinical manifestations had ever occurred. In the light of our observations and excellent therapeutic responses when both phases are recognized, we believe this to occur definitely. Hence it is believed that an infection of the skin due to living organisms may likewise render the person hypersensitive to substances emanating from things inanimate as well as animate.

Apparent cure or a marked improvement of the fungous infections did not eradicate the secondary eruption, while removal of the incriminating substance from the diet or removal of the irritant was of distinct help, and in practically all produced a clinical cure.

Trichophytin was used in only one patient of this group; it produced such a marked aggravation of the ringworm infection that it was not felt justifiable to use it further. A statement of Sulzberger and Kerr[23] in this respect is significant. They state that "for a procedure (i. e., testing to trichophytin) which gives a large number of positives in apparently normal individuals cannot bear much weight in diagnosis; this has naturally led to a diminished belief in the diagnostic value of trichophytin in the United States." Its value, therefore, at present, in testing these sensitization dermatoses would be quite limited if of any value. Furthermore, in testing several patients in another line of research who at the time had undoubted ringworm of the feet, it was entirely negative (C. W.).

The discussion of the fundamental principles of allergy will not be undertaken here. The original meaning of Pirquet and Schick in 1906 may be recalled; viz., "A change occurring in an organism after contact with a living or inanimate organic 'poison' and manifesting itself in an altered reaction to a second application of the same substance (or closely related)." Various terms are used by various experts, which has led to considerable confusion. The term "sensitization" is used for want of a better one.

The skin tests must be properly executed and properly interpreted. If so, then the cause of the secondary eruption is quite simplified. Ramirez and Eller[24] state the situation quite tersely in saying that "sensitization tests are a distinct aid in the diagnosis of dermatoses if carefully performed and interpreted." In some instances one can detect the causative substance without the necessity of sensitization tests. Especial study in each of the observed patients in this group was made to determine that the sensitization occurred only after the preceding fungous activity. Thus it is felt that in these patients the active fungous infection had definitely sensitized them to the various extraneous substances.

CONCLUSIONS

Superficial fungous infections (ringworm) of the extremities and elsewhere may be followed by secondary sensitization dermatoses of nonfungous nature.

Such dermatoses may be confused with dermatophytid eruptions; future studies may show that some may be a part of a dermatophytid as at present conceived.

Detailed individual study and properly performed sensitization skin tests usually will discover the offending substances.

Four illustrative cases are cited; an insufficient number of cases has been studied to incriminate any specific organism or any particular class of proteins or substances.

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ABSTRACT OF DISCUSSION

Dr. Albert Strickler, Philadelphia: I am impressed with the tremendous importance of the question of hypersensibility. It has not been many years since the question of hypersensibility was limited to the problem of drugs. The second step in the advance was the relationship of poison ivy, and the work of Bloch, and then this problem—important because of its wide spread—the trichophyton fungus infection. Dermatologists are faced with a peculiar problem, because there are many conditions on the skin, particularly on the hands, the etiology of which seems to be more or less uncertain, in the sense that no definite test is available which will determine whether the lesion is due to a trichophyton infection, whether the condition is one of mild or severe hypersensitiveness, or whether a trauma of some kind produced the skin lesion on the hand. At the Skin and Cancer Hospital we have attempted in the last several months to carry out several cutaneous tests with trichophytin. Unfortunately, perhaps because of experimental error, many were positive, so many that we could not believe our results. An important thing to keep in mind is the peculiar idiosyncrasy of the skin. Second, what are the drugs which the patient has either applied locally or taken internally? Third, what is the method by which a reaction on the skin may be obtained which will give a true etiologic index? The question of hypersensibility, and the question of finding a reliable cutaneous test for these trichophyton infections, present the important elements for consideration.

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[21] Williams, C. M.: Keratolysis and the Mosaic Fungus, Arch. Dermat. & Syph. **23**: 733 (April) 1931.

[22] Sulzberger, M. B., and Lewis, G. M.: Trichophytin Hypersensitiveness Demonstrated by Contact Tests, Arch. Dermat. & Syph. **22**: 410 (Sept.) 1930.

[23] Sulzberger, M. B., and Kerr, P. S.: Trichophytin Hypersensitiveness of Urticarial Type, with Circulating Antibodies and Passive Transference, J. Allergy **2**: 11 (Nov.) 1930.

[24] Ramirez, M. A., and Eller, J. J.: Intradermal, Scratch, Indirect and Contact Tests in Dermatology, J. A. M. A. **95**: *1080 (Oct. 11) 1930.*

Dr. Joseph Muller, Worcester, Mass.: I was impressed by this paper, as I am working on allergy in general and have found several cases in which the patient did not react under one particular allergy but had a combined allergy. It was necessary to have two allergins present to get the allergic reaction. In one case, an allergic eczema in a girl, aged 12, the combination of potatoes and wheat was the cause of the disorder. Removal of either one from her diet for a prolonged period produced cure. A woman had urticaria from eating strawberries on some occasions but not always. I could not correlate it. After some time I got a calender which she kept on her menstrual periods and found that she was susceptible to strawberries only during the first two days of menstruation. Another case was that of a woman who had urticaria after eating five different foods and who promptly lost that allergic state after removal of her teeth. This case seemed to me parallel to the case reported by Drs. White and Taub in which trichophytin injection caused an eruption, combined with food or other materials.

Dr. S. W. Becker, Chicago: The authors have presented an excellent cross-section of the population in a large city, and I wish to present a more intensive study of a selected group of children. The University of Chicago has a small private school for pupils corresponding in age to those in public schools. Great care is observed with regard to children taking athletics and entering the swimming pool. Any child who has a maceration between the toes or an exfoliation between the toes is excluded. The parents commonly bring the children to us for an evaluation of the condition, and they are generally considerably perturbed. We have no Negroes, but children from the higher strata of society, and pediatricians state that we have children with what Tilbury Fox has termed dyshidrosis. These children are more prone to develop verrucous conditions. We have examined them repeatedly by potassium hydroxide and other methods and have found no fungus. We are inclined to believe that the diagnosis of fungus infection is extremely difficult, and the paper of Drs. White and Taub confirms this. Patients who are hypersensitive and develop a dermatitis have been found to be seven times as sensitive to fungi as normal individuals. We know that during their eruption they are many times more sensitive, so we would expect them to develop a dermatitis of the type the authors describe.

Dr. Samuel M. Peck, New York: I have been attempting to desensitize a series of patients. About twenty-four patients did not have dermatophytosis, so far as I could judge. My idea was that, given a case of trichophytin sensitivity, in order to treat trichophytosis with trichophytins the sine qua non was sensitization. Therefore, as a matter of choice I took patients who had not had trichophytosis, with the same idea as the treatment of hay fever in the preseasonal period, for I knew I was giving a certain amount of trichophytin, and therefore was using a logical amount of therapy. In the patients with a trichophytosis I got a desensitization, but they did not react to injections of Zurich trichophytin. These patients have returned in the last month with what I judge to be recurrence and now tests for the trichophyton are positive.

Dr. Marion B. Sulzberger, New York: The conclusions which I wish to reach concerning trichophytin desensitization are the following: It is not efficacious in the majority of cases with the technic now used, but it is sufficiently encouraging in the few cases I have witnessed to recommend it for use in epidermophytids that have proved recalcitrant to other therapy. In addition to this, I should like to try variations of administration, such as intravenous or subcutaneous injections. Concerning prophylaxis, it is impossible to think that one can achieve this by disinfecting clothes or floors or anything of the sort. Almost all have had and have tinea infections. Every one carries the fungi continually, whether walking on infected floors or disinfected floors, in sterile slippers or slipperless. One factor that reduces resistance to these germs is maceration. Hence the occurrence of manifest lesions after gymnasium work, swimming pools or golf, and after nervousness and its accompanying hyperhidrosis. In some cases the best hope for combating these outbreaks is by influencing the immunity, and one way of influencing this immunity is through trichophytin injections.

Dr. Cleveland J. White, Chicago: The clinical observation that one dermatitis may predispose a patient to another has been made by experienced dermatologists. Dr. Becker reported his observation that persons with a dermatitis venenata are more sensitive, especially during the duration of the dermatitis. It was the aim in this paper to try to prove definitely that such events do actually occur after the skin has been rendered allergic by an active ringworm infection, and a sensitization dermatitis due to an inanimate substance occurred. In an occasional case, even after both phases are recognized, local treatment is necessary in the secondary eczematoid areas because of irritation and possibly bacterial invasion.

THREE FATAL CASES OF BACILLUS PYOCYANEUS INFECTION *

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Three fatal cases of Bacillus pyocyaneus infection observed at Mount Sinai Hospital of Cleveland presented characteristic features, including gangrenous and less severe lesions of the skin, most advanced in the anal, rectal or genital areas; general intoxication with profound prostration and, at autopsy, hemorrhagic and necrotic lesions in the skin and viscera, associated with massive local bacterial colonization. One of these cases, which presented agranulocytosis, terminated eighteen days after the onset of symptoms in a previously healthy child.

B. pyocyaneus infection, although not of common occurrence, is perhaps less rare than is generally supposed. Clinically it may be confused with a number of skin diseases, including pellagra and lupus erythematosus disseminatus. It must be differentiated from aleukemic leukemia, the purpuras and other diseases. Some progress toward specific therapy has been reported by Wassermann,[1] and it is possible that further studies will reveal methods of preparing potent bactericidal and antitoxic serums.

Bacillus pyocyaneus was obtained by Gessard,[2] in 1882, in pure culture from two cases of skin wounds showing bluish green discoloration. Not long thereafter the organism was found, by numerous investigators, in colored suppurations in various portions of the body. Among the first reports was that of Gruber[3] in 1887, who recovered Bacillus pyocyaneus from green suppurations of the ear.

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[1] Wassermann, August: Experimentelle Untersuchungen über einige theoretische Punkte der Immunitätslehre, Ztschr. f. Hyg. u. Infectionskrankh. **22:** 263, 1896.

[2] Gessard, Carle: La pyocyanine, Thèse de Paris, 1882.

[3] Gruber, J.: Ueber das vorkommen grunen Eiters in Ohre, Monatschr. f. Ohrenh. **21:** 145; 178, 1887.

By 1897 the organism had been repeatedly found not only in various local processes throughout the body but also in general infections with severe constitutional symptoms, as reported by Barker.[4] This observer also noted the occurrence of Bacillus pyocyaneus in gangrenous lesions of the skin, as did Hitschmann and Kreibich [5] shortly thereafter in similar cases of ecthyma gangrenosum.

A good review of the literature to 1908 concerning the pathogenicity for man of Bacillus pyocyaneus is given by Waite.[6]

A more comprehensive review of the literature to 1926, including the biology and pathogenicity of the organism, is presented by Lode.[7]

The few reports since 1926 concerning Bacillus pyocyaneus infection in man add nothing to the classic description of the disease by Eugen Fraenkel [8] in 1917.

REPORT OF CASES

CASE 1.—*History.*—E. O., a white woman, aged 39, admitted to the hospital, Aug. 8, 1923, complained of redness of the cheeks with itching, which had started seven weeks previously. She had suffered from asthenia and from transient pain in many joints for about two years. About seven weeks previously a rash appeared on her cheeks, which rapidly spread and involved almost the entire face down to the neck and chest. The eyelids and lips became swollen and the mouth sore. She had marked lassitude, asthenia and anorexia.

Physical Examination.—The patient was well developed and well nourished; the temperature and pulse were normal. The lesion on the face, involving both cheeks and the bridge of the nose, was indurated and purplish, and had a sharp line of demarcation, resembling closely the butterfly form of lupus erythematosus. There was, however, marked puffiness of the eyes and marked swelling of the lips. The mucous membrane of the mouth showed white patches on the lips and the gums; there was a deeper ulcer underneath the tongue; the uvula showed superficial ulcerations.

On the extensor surfaces of the forearms and the elbows there were small circular purplish papular areas, indurated, having a somewhat indolent appearance similar to the lesions on the face and neck. In the anogenital region there was an extensive superficial ulcerative lesion, moist and covered with a whitish exudate.

About fourteen days after the patient's admission a cough and dyspnea developed, and the temperature rose abruptly to 103 F. At this time physical examination showed dulness at both bases with many râles and other signs of consolidation. Death occurred, August 25, seventeen days after admission. Laboratory examinations showed a slight secondary anemia and, almost consistently, a leukopenia, the white cells varying from 7,000 down to 2,000, with a normal differential count. The urine was normal. Blood cultures were negative. Stools were negative for ova and parasites.

The clinical diagnosis vacillated between lupus erythematosus disseminatus and pellagra. The latter diagnosis was considered because of the previous history of asthenia, the depressed state of the individual, and the presence of indolent, rather symmetrical lesions, appearing for the most part on regions of the skin not covered by clothing. The patient's diet, however, except for the fact that she ate meat two or three times a week only, had been fairly well balanced, containing plenty of eggs, butter fat and fresh vegetables.

Autopsy.—Autopsy thirteen hours after death showed: Bacillus pyocyaneus infection with early gangrenous inflammation in the anovulvar region; multiple erythematous and maculopapular disseminated skin lesions (gram-negative bacilli in lesions); focal erythematous lesions in the oral cavity, larynx, esophagus, stomach and intestine; small ulcers of the lips, buccal mucosa and lower esophagus (gram-negative bacilli in lesions); coalescing lobular pneumonia (B. pyocyaneus was recovered from the pneumonic lung); old and fairly recent tuberculous inflammation of the peribronchial lymph nodes.

The body was that of a well developed, well nourished white woman. The skin showed lesions, as described. On section of the lungs, both upper lobes and the left lower lobe showed grayish areas of coalescing lobular consolidation. Mucosa of the upper anterior surface of the tongue, in an area about 2 cm. in diameter, showed considerable injection. In the posterior portion there was a punctate hemorrhage about 2 mm. in diameter in the mucosa. On the edge of each true vocal cord the larynx showed a small area of injection and possible infiltration several millimeters in large diameter.

Examination of the lower two thirds of the esophagus presented a striking picture. There were about a dozen circumscribed, finely injected areas, ranging from 2 mm. to 1 cm. in diameter. The injection in the majority of the lesions was concentric. Some of the areas showed grayish infiltration of the mucosa. Some showed definite central superficial ulceration. A few showed yellowish flecks at the edge of the ulcerated portions. Throughout the small intestine there were a number of areas of intense patchy injection of mucosa. The rectum showed fairly numerous areas of injection and some hemorrhage. In places the circumscribed injected areas resembled those in the esophagus.

Cultures from the consolidated lung yielded abundant growth of Bacillus pyocyaneus.

Under microscopic examination the following conditions were revealed: The skin of the vulvo-anal region showed areas of necrosis of the surface epithelium with chronic granulation tissue in the base. The skin of the foot showed numerous engorged capillaries in the upper layer of the corium, and a number with hyaline thrombi in the lumen (regional hemorrhages). Associated with these lesions, the granular cells in the rete were swollen and the cytoplasm was vacuolated. In several places there were vesicles within the rete. Sections of the lung showed a striking picture of apparently necrotizing bronchopneumonia. The necrosis affected the exudate and the walls and was observed in places involving smaller bronchial branches and their contained exudate. The esophagus showed an area of erosion several millimeters in extent, with chronic granulation tissue in the base. Throughout the section the blood vessels were engorged. Section of the rectum showed an area of ulceration at the mucocutaneous border, several millimeters in diameter, with chronic granulation tissue in the base

In early and moderately advanced lesions of the skin, lung and alimentary canal, sections stained by the Gram method showed clumps of large gram-negative bacilli.

CASE 2.—*History.*—F. E. D., a well developed, well nourished white man, aged 58, came to the hospital, Jan. 30, 1924, with the complaint of enuresis and frequency for the past two years. He had had night frequency for many years and for the past two years enuresis; he had been catheterized twice a day for the past two months.

Except for the urinary tract, his physical examination on admission gave negative results. The prostate on rectal palpation was large but not nodular. The urine was alkaline and contained many clumps of pus cells and epithelial cells. Chemical analysis of the blood and the phenolsulphonphthalein test gave negative results. Two weeks after admission he had a chill and his temperature went to 104 F.

The white cell count rose following the first chill to 41,000, with a normal differential count, and the nonprotein nitrogen went from 27 to 141 mg., with a corresponding increase in the various nitrogenous metabolites and dextrose; the phenolsulphonphthalein return fell to 15 per cent in three hours. Blood cultures were negative.

The patient was acutely sick, had numerous severe chills, and, despite transfusions, intravenous injections of mercurochrome-

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[4] Barker, L. F.: The Clinical Symptoms, Bacteriologic Findings and Postmortem Appearances in Cases of Infection of Human Beings with the Bacillus Pyocyaneus, J. A. M. A. **29:** 213 (July 31) 1897.

[5] Hitschmann, Fritz; and Kreibich, Karl: Zur Pathogenese des Bacillus pyocyaneus und zur Aetiologie des Ekthyma gangraenosum, Wien. klin. Wchnschr. **10:** 1093 (Dec.) 1897.

[6] Waite, H. H.: A Contribution to the Study of Pyocyaneus Infections, with a Report of Two Rare Cases, J. Infect. Dis **5:** 542, 1908.

[7] Lode, A.: Bacillus Pyocyaneus, Handbuch der Pathogenen Mikroorganismen, Jena, G. Fischer **6:** 149, 1929

[8] Fraenkel, Eugen: Weitere Untersuchungen über die Menschenpathogenität des Bacillus pyocyaneus, Ztschr. f. Hyg. u. Infectionskr. **84:** 369, 1917.

220 soluble and supportive measures, he died, February 29, thirty days after admission.

Clinical diagnosis was hypertrophy of the prostate, atony of the bladder, cystitis and acute ascending pyelonephritis.

Autopsy.—Autopsy six hours after death showed: chronic prostatitis with enlarged median bar; dilatation and hypertrophy of the bladder: acute cystitis; ureteritis; bilateral suppurative pyelonephritis (Bacillus pyocyaneus and Staphylococcus aureus in the latter lesion); Bacillus pyocyaneus septicemia; gangrenous colitis and bronchopneumonia (Staphylococcus aureus also in the latter lesion).

The body was that of an anemic looking slightly emaciated tall old white man. In the right and left upper lobes of the lungs there were a number of dry granular grayish consolidated patches varying in size up to a centimeter in diameter.

The kidneys together weighed 550 Gm. The surface of each presented a striking picture with innumerable opaque yellow areas, from 1 to 3 mm. in diameter, slightly elevated above the general level. There was marked opaque yellow infiltration in places throughout the kidney substance. The mucosa of the ureters showed some injection. In the lumen there was abundant pus. The bladder contained a few hundred cubic centimeters of turbid urine. The walls were greatly thickened, averaging 1 cm. The mucosa was strikingly trabeculated and showed considerable injection, some areas of hemorrhage and apparently some infiltration of the mucosa. At the neck of the bladder there were two spherical masses of firm yellowish white tissue, apparently the median bar of the prostate, each 1.5 cm. in diameter, elevating the regional, considerably injected vesical mucosa and in addition obstructing the orifice. Each lateral lobe of the prostate was somewhat larger than the average. The consistency was somewhat increased. On section, some scarring of each lobe was seen. A few small spherical yellowish white nodules were present on each side.

Beginning in the cecum and continuing to the anal ring, especially marked in the rectum, there were areas of yellowish brown infiltration of the mucosa especially marked along the folds of the large intestine, with extensive ulceration in the sigmoid colon and the rectum. The odor was offensive.

Culture of the blood showed abundant growth of Bacillus pyocyaneus, and kidney culture showed Bacillus pyocyaneus and Staphylococcus aureus.

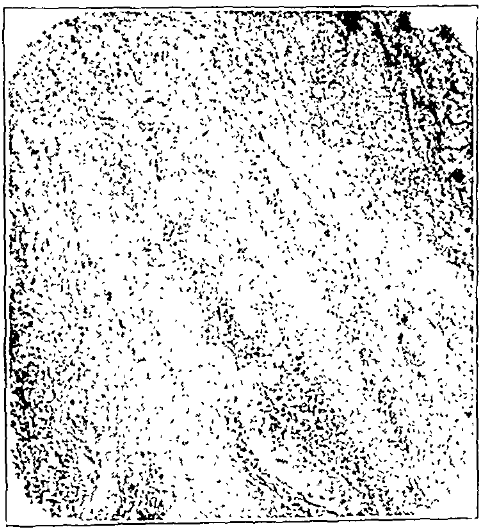

Fig. 1 (case 3).—Low power magnification showing gangrenous necrosis in primary lesion of anal region.

Under microscopic examination the following conditions were noted: Section of the lung showed typical necrotizing pneumonia. Section of the kidney showed intense infiltration by pus cells in all portions, with numerous abscesses varying in size up to 3 mm.

The colon presented a striking picture of necrosis of the mucosa and submucosa with intense pus cell infiltration, abundant fibrin deposit and thrombosed blood vessels.

The following observations were made on sections stained by the Gram method: Numerous large and small clusters of typical gram-positive staphylococci were seen in the lung. In certain necrotizing areas especially involving blood vessels there were many slender gram-negative bacilli.

In a gangrenous lesion in the colon there were innumerable slender gram-negative bacilli.

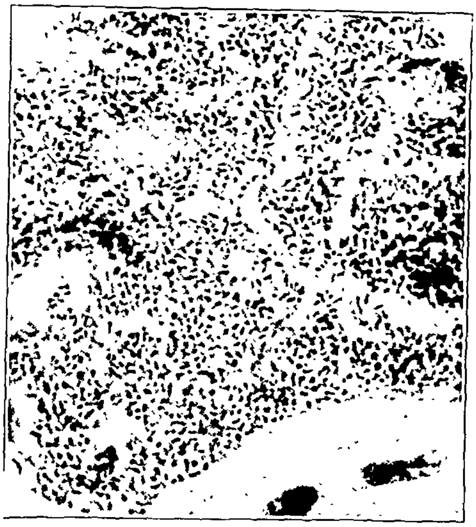

Fig. 2 (case 3).—High power magnification of lesion shown in figure 1. Note the massive colonization of Bacillus pyocyaneus with gangrenous necrosis.

In portions of a section of the kidney there were numerous slender gram-negative bacilli, especially in the interstitial tissue and in the walls of blood vessels. There were numerous gram-positive cocci in clusters in many areas of suppuration.

Case 3.—*History.*—W. G., a white boy, aged 7 years, admitted to the hospital, Sept. 21, 1928, complained of a high fever and of pain in the rectum of two days' duration. The family history was negative and, except for a history of an abscess under the arm one year previously and another near the rectum two years previously, the past history of the patient was essentially irrelevant

Physical Examination.—The child was well developed but slightly undernourished, with a hot, dry, pallid skin; the temperature was 104 F. The lungs were normal and the heart showed a slight bulkiness of the left ventricle on fluoroscopy. The spleen was palpable two fingerbreadths below the costal margin, and the liver was also palpable but not tender. The patient complained of extreme pain in the perineum, and there was very marked tenderness in that region. However, no swelling was palpated. Numerous hemorrhages were found in both retinas. The red blood count was 2,000,000; the hemoglobin, 55 per cent; platelets, 55,000; the white blood count 3,200, with 40 per cent granulocytes. Bleeding time and clotting time were normal. Urinalysis and the intracutaneous tuberculin test both gave negative results Cultures from the stool yielded an abundant growth of Bacillus pyocyaneus.

Course.—The patient's condition became gradually worse, the temperature remaining at a very high level; the pulse became more rapid, and the prostration increased. A few days after admission, a few purpuric spots appeared over the abdomen and the lower extremities. A faint systolic murmur was heard over the precordium and a slight to and fro friction rub in the third interspace to the left of the sternum.

Six days after admission, blood culture showed an abundant growth of Bacillus pyocyaneus. The white blood cells diminished in number to 1,150 and the granulocytes fell to 5 per cent. The blood platelets dropped to 14,400 and the red blood cells to 1,600,000. Transfusions were given twice with no apparent improvement. The next day a deep mass was palpated in the left ischiorectal area, bulging into the rectum. In a day or two the skin of this region became gangrenous, and an incision and drainage were done. The child became comatose, and a gangrenous sloughing area developed in the region of the first lower left molar, where a tooth had been extracted; physical signs of bronchopneumonia appeared over both bases and the patient died, October 6, sixteen days after admission to the hospital. The impression on admission was that the case was one of aleukemic leukemia, but after the positive blood culture a diagnosis was made of Bacillus pyocyaneus septicemia, gangrenous inflammation of the muscles of the left buttock, thrombocytopenia and agranulocytosis.

Autopsy.—Autopsy, performed by Dr. A. M. Young, fifteen and one-half hours after death showed: anorectal gangrene (B. pyocyaneus); gangrene of the muscles of the left buttock (B. pyocyaneus); B. pyocyaneus septicemia with focal necrotizing pneumonia; focal necrosis of the appendix; multiple hemorrhagic necroses, especially of the serous membranes.

There were a number of areas of bluish red discoloration beneath the skin of the trunk and extremities in places, apparently subcutaneous hemorrhages. There was considerable bluish red discoloration about the anus; there were also a number of large blebs containing reddish fluid.

When the abdomen was opened many punctate hemorrhages, ranging from 1 to 4 mm. in diameter were noted, scattered everywhere over the peritoneal surfaces. Numerous hemorrhages were disclosed in the pleura and in the diaphragm when the thorax was opened. Firm nodules were felt on palpation in all lobes of the lungs. On cutting down, these areas were found to be dark red with a central gray area. These areas, approximately 1 cm. in diameter, were roughly spherical. In the left upper lobe, on section there were several small, gray, somewhat translucent nodules, each about 6 mm. in large diameter, with an almost cartilaginous consistency. Section of the appendix showed grayish green mucosa, with a small defect in one area, approximately 1 mm. in diameter, covered by yellow friable material.

Near the region of the anus the colon showed marked edema, greenish discoloration of the mucosa and, in one area, ulceration of the mucosa with defect formation. The defect was covered by yellow friable material. Serosa of the alimentary canal throughout showed numerous areas of hemorrhage.

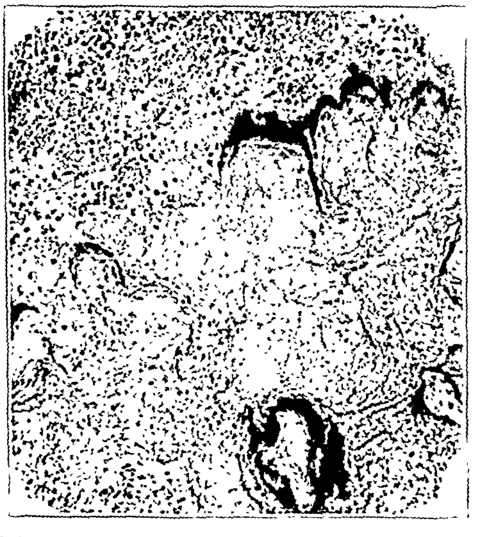

Fig. 3 (case 3).—Low power magnification of the lung. Note the fully developed embolic lesion with central necrosis and peripheral hemorrhage.

The muscles on the left side of the pelvis were swollen, reddish brown, much more friable than those on the right, and had a penetratingly foul odor. There was a surgical incision in the left buttock near the anal orifice, which communicated with the gangrenous muscles of the left buttock.

Smears from the necrotic lesion of the buttock showed innumerable gram-negative bacilli; small gram-positive chain forming cocci; larger gram-positive cocci, some of which were paired, and some fusiform bacilli.

Culture yielded an abundant growth of B. pyocyaneus, B. coli and a gram-positive bacillus; also a rounded chain-forming, small gram-positive coccus in broth.

Culture of the blood revealed B. pyocyaneus and B. coli-communior. A culture in broth yielded also a gram-positive chain-forming coccus (enterococcus?).

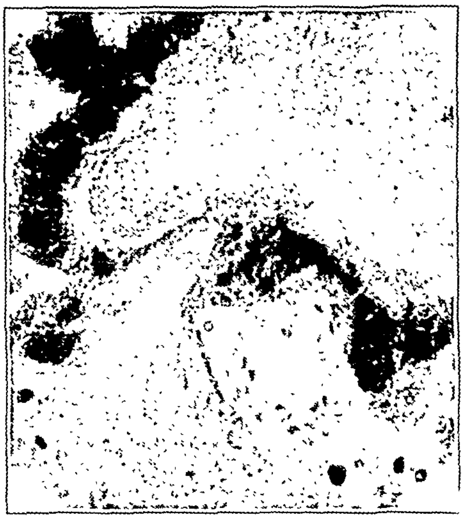

Fig. 4 (case 3).—High power magnification of section shown in figure 3, showing Bacillus pyocyaneus colonization with necrosis.

Microscopic examination of sections afforded the following data:

The anorectal tissue was scarcely recognizable. There was marked necrosis throughout. The material stained amorphous blue and pink. In places, phantoms of the former cell structures were recognizable. There was very slight infiltration throughout by round cells and a few polymorphonuclears.

The tissue of the gluteal muscle was scarcely recognizable There was marked necrosis throughout.

In the lung, section 1 showed a roughly circular area approximately 4 mm. in diameter, the center of which was necrotic, amorphous blue and pink stained with abundant fibrin present. There were marked hemorrhage into the alveoli about this necrotic area and moderate infiltration by round cells and a few polymorphonuclears. Section 2 showed several fairly large areas (3 to 5 mm.) of scarring with central necrosis. In one area the scar tissue was quite cellular.

On section the appendix showed a wedgeshaped area of necrosis of the mucosa. In places, phantoms of former cell structures were present.

Section of a peribronchial hilar lymph node showed an area of scarring similar to those seen in lungs. There was some central necrosis. At the periphery there were a few scattered foreign body giant cells.

Anorectal and gluteal lesions stained by the gram method showed innumerable gram-negative bacilli adjoining one another almost everywhere. Very little intact fixed tissue was present.

Gram stains of the lung revealed innumerable gram-negative bacilli in many blood vessels and alveoli in the necrotic area. Innumerable gram-negative bacilli were present in the necrotic area of the mucosa when the appendix was stained by the same method. A number of bacilli were present in the regional intact tissue.

CLINICAL OBSERVATIONS

Two acute cases and one quite chronic case showed:

1. The presence of gangrenous lesions in the anogenital region in all three cases.
2. Bacillus pyocyaneus septicemia in one of the acute cases.
3. A toxic appearance with severe prostration in all the cases.

4. Leukopenia in two cases; not present in the case with concurrent Staphylococcus aureus infection.

5. Agranulocytosis in one case. In this connection it is of interest to note that Bacillus pyocyaneus infection has been found present in a considerable number of the reported cases of agranulocytosis.

6. Thrombocytopenia in one case.

7. Ulcerative and erythematous lesions in the mouth in one case.

8. Indolent, erythematous, raised, sharply circumscribed skin lesions, varying in size from a few millimeters to a butterfly lesion 10 cm. in extent over the bridge of the nose in one case. The latter lesion suggested the diagnosis in this case of lupus erythematosus. The fact that many indolent lesions occurred in parts most often unprotected by clothing led to the belief that the condition might be pellagra. A case similar to this was reported by Ashby, Eldridge and Freeman.[9]

9. Terminal bronchopneumonia in the three cases.

PATHOLOGIC OBSERVATIONS

1. Gangrenous genital, anal or rectal inflammation was found in three cases.

2. Bacillus pyocyaneus septicemia was found in two cases.

3. Disseminated erythematous or necrotizing lesions of the alimentary canal were found in three cases. In one case there were multiple erythematous lesions in the esophagus, some with areas of necrosis. A case with even more severe involvement of the esophagus was reported by Barker[4] (case 3).

4. Scattered hemorrhages of the serous or mucous membranes were found in three cases.

5. Bacillus pyocyaneus bronchopneumonia was found in three cases. The pneumonic patches in one case were recognizably different from ordinary bronchopneumonia, the lesion consisting of a coherent coarsely granular gray core, from 1 to several millimeters in diameter, surrounded by an area of hemorrhage or of smooth, red consolidation. The lesions varied from 4 to 12 mm. in diameter.

6. Erythematous, macular, maculopapular and vesicular skin lesions were found in one case.

Microscopically, the primary anal and genital lesions at autopsy showed massive bacterial colonization, gram-negative bacilli (Bacillus pyocyaneus) predominating, with striking necrosis of the tissue. There was slight leukocytic infiltration in places.

Early embolic lesions showed gram-negative bacilli (Bacillus pyocyaneus) in the vessel walls, with regional hemorrhage and at times abundant fibrin deposit.

Fully developed embolic lesions showed a central necrotic core composed of necrotic fixed tissue, very few wandering cells, innumerable gram-negative bacilli, not only in the vessel walls but also in many places adjoining one another for considerable distances; at times there was abundant fibrin present in the core. In some fully developed embolic lesions there was abrupt transition to normal tissue. Gram-stained sections, however, showed gram-negative bacilli in cells beyond the necrotic zone. In others there was a zone of hemorrhage about the necrotic core. This unusual lesion is perhaps most characteristic in the lung.

Healed embolic lesions (lungs, peribronchial lymph nodes) were composed of masses of dense fibrous tissue (several millimeters in diameter) showing some round cell infiltration. Some showed areas of central necrosis and some showed giant cells in places.

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[9] Ashby, Winifred M.: Eldridge, W. W., and Freeman, Walter: Chronic Pyocyaneus Infection, J. A. M. A. **88:** *1307 (April 23) 1927.*

INTRADERMAL IMMUNIZATION IN GONORRHEA

AN EXPERIMENTAL AND CLINICAL REPORT *

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CHICAGO

Stimulated by the publications of Besredka[1] on the streptococcus and staphylococcus "antivirus," and realizing the lack of standardization in the treatment of gonorrhea in men, women and children, I made a determined effort in the summer of 1928 to produce a similar product for the treatment of neisserian infections. Up to the present time there have been no published reports in German, English or American literature of any similar product having been produced from the gonococcus.

However, in 1927 Barbilian, Vosebeoinie and Franke[2] reported (in France) an experience in the treatment of gonococcal anterior urethritis by means of local injections of so-called antivirus. Sixteen men with acute gonorrhea were treated and fourteen were said to be clinically and bacteriologically cured. The gonococci were cultivated in an ascitic fluid medium. Bertarelli[3] (in Italy) made similar clinical experiments but his results were so discouraging that he gave up the use of antivirus preparation.

As it is very difficult to grow the gonococcus on a liquid medium, and as there was failure in producing a satisfactory growth, in the spring of 1929, the assistance of Clark and Ferry of the Research Department of Parke, Davis and Company was obtained. In the fall of 1929 a gonococcal bouillon filtrate was produced and given to us for clinical research. This was found by them to contain a soluble exotoxin and not to be an antivirus. In December, 1930, before the Society of American Bacteriologists they[4] presented their paper on studies of the properties of a bouillon filtrate of the gonococcus, the conclusions of which are as follows:

> 1. The gonococcus produces an extracellular toxin, when grown in suitable liquid medium, which promotes rapid development.
>
> 2. The sterile bouillon filtrate from young cultures contains this extracellular toxin in sufficient concentration to give positive skin reactions in dilutions of from 1:1,000 to 1:1,500.
>
> 3. Injection of animals with this toxin stimulates the formation of an antitoxin which will neutralize the toxin in vitro as well as in vivo.
>
> 4. Control autolysates and mechanically produced control intracellular extracts give negative skin reaction in low dilutions.
>
> 5. An antivirus which met the specifications of Besredka[1] was not produced in liquid cultures of the gonococcus allowed to incubate for six or seven days.

In preparing the gonococcus toxin (bouillon filtrate), cultures were allowed to incubate not longer than from four to six days, and the medium employed was prepared from veal infusion containing 0.1 per cent dextrose and 5 per cent ascitic fluid.

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* Read before the Section on Urology at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 10, 1931.

[1] Besredka, Alexander: Local Immunization, Specific Dressings, Baltimore, Williams & Wilkins Company, 1927.

[2] Barbilian, W.; Vosebeoinie, H., and Mme. Franke: Local Treatment with Antivirus in Cases of Gonococcal Urethritis, Paris méd. **1:** 506, 1927.

[3] Bertarelli, E.: Giorn. ital. de dermat. e sifilis **69:** 1477 (Oct.) 1928.

[4] Clark, L. T.; Ferry, N. S., and Steele, H. H.: Paper presented in December, 1930, before the Society of American Bacteriologists, J. Immunol. **21:** *233 (Sept.) 1931.*

In our early attempt with the bouillon filtrate we directed its application to the urethra in acute anterior urethritis in the male. Elaborate and carefully controlled means of sealing the bouillon into the urethral canal were devised, using it both in concentrated and in diluted form. Later copious urethral irrigations supplemented by hand injections were tried. After a thorough trial met with failure this method of procedure was abandoned.

INTRADERMAL INJECTION

Bearing in mind that Müller,[5] as early as 1922, had called attention to the fact that in gonorrheal urethritis in the male when he had injected intracutaneously small quantities of aolan, there resulted in a few hours a marked stimulation of the urethral secretion, we made an exhaustive review of the literature on intradermal medication. We found that during the last few years three methods of approach had been opened in the defensive mechanism of immunity in man. These comprise, first, the cells that are immunized (the reticulo-endothelial system); second, the route of injection of the immunizing agent (the skin), and, third, the immunizing agent (bacteria or their toxins).

Scientifically, the procedure of influencing disease by way of the skin was introduced in 1796 by Jenner,[6] who is justly called the founder of cutaneous therapy.

It has been known for some time that the skin is not only a simple sheath protector of the body but also an organ of vital importance in the production of immunity and the prevention of infection. It is composed of two very distinct parts considered from the embryologic as well as the histologic point of view; i. e., the epidermis, which is derived from the ectoblastic layer, and the derma, or cutis vera, which is derived from the mesoblastic layer. The derma, or cutis vera, is composed of a network of elastic fibers of great strength interlaced with connective tissue elements. The rich vascularity of this area makes it possible to bring large quantities of blood into the skin; at the same time the histiocytes of the loose connective tissue act as receptive cells.

THE RETICULO-ENDOTHELIAL SYSTEM

While these cells were recognized by Metchnikoff[7] in 1884 and called macrophages, it was not until Aschoff,[8] in 1924, emphasized the cellular mechanism of defense that characterized these cells that Metchnikoff's original conception of immunity was accepted as a rational defensive mechanism.

These cells comprise a large group of cellular elements that arise from the mesenchyme. At times they are very different under physiologic conditions, but their reaction is similar if not identical in response to certain stimuli. According to Maximow,[9] they are found in the spleen, liver, lungs (small amount), omentum, bone marrow, lymph nodes and loose connective tissue. Their nomenclature is varied and confusing, being designated as Kupffer cells in the liver, splenocytes in the spleen, clasmatocytes in the omentum, dust cells in the lung, histiocytes in the lymph nodes and macrophages in the loose connective tissue. In this paper the term histiocytes, as suggested by Maximow, will be used.

All histiocytes play an important rôle in metabolism and are capable of wandering. However, this is manifest only under the influence of stimuli, either local or general.

Whatever irritates the skin, either mechanical or bacterial in nature, not only irritates the histiocytic elements but also sets in motion involuntary nervous stimuli which, according to E. F. Müller,[5] is an equally important factor in the body's resistance to disease, as it is from this vital center that the whole physical mechanism of defense is controlled. His experiments led him to believe "that the entrance of bacterial excitants into the body cause a reaction involving chiefly two groups, (1) the bone marrow system, the originator of the white blood corpuscles, and (2) the involuntary nervous system, the conductor not only of the stimulation from the site of infection to the bone marrow system, but also of the newly formed immunizing substances and leukocytes to the site of infection." This is shown clinically by a leukocytosis during infection of the body.

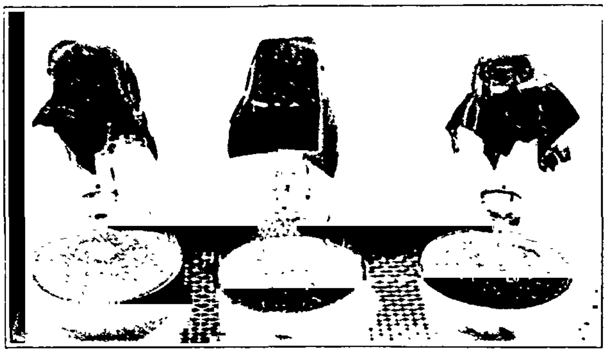

Fig. 1.—Gonococcus growing on liquid culture medium

He also claims that the skin acts as an amplifier of specific and nonspecific irritants (proteins), and that the response to stimuli introduced intradermally is from 100 to 150 times greater than that produced by any other route.

Although intradermal injections of autogenous gonococcal vaccine have been used with favorable results in gonorrhea by Ryll-Nardzewski[10] and others, it autolyzes too readily to make it a stable therapeutic procedure.

Max A. Goldzieher and Samuel M. Peck,[11] in their experiments on the reticulo-endothelial system, have shown that the histiocytes of the skin respond more quickly to the toxins of the bacteria than to the bacteria themselves.

In consideration of the foregoing data we concluded that if a suitable gonococcal toxin could be prepared and injected intradermally, satisfactory results might be obtained. To our knowledge this is the first attempt to cure acute and chronic neisserian infection by the intradermal administration of a gonococcal toxin (antigen).

CLINICAL REPORT

Since November, 1929, in the private practice of Dr. Vincent J. O'Conor and myself, there have been treated by means of intradermal injections of the

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5. Müller, Ernst Friedrich: Leukopenia on Account of Nonspecific Injections Intracutaneously, München. med. Wchnschr. **69:** 150 (Oct. 27) 1922.

6. Jenner, Edward: An Inquiry into the Causes and Effects of the Variolae Vaccinae, a Disease Discovered in Some of the Western Counties of England, Particularly Gloucestershire, and Known by the Name of the Cow Pox, London. Printed for the author, 1798.

7. Metchnikoff, Elie: Ueber die Beziehung der Phagocyten zu Milzbrandbacillen, Virchows Arch. f. path. Anat. **97:** 502, 1884.

8. Aschoff, Ludwig: Das reticulo-endotheliale System, Ergebn. d. inn. Med. u. Kinderh. **1:** 26, 1924.

9. Maximow, A. A., and Bloom, William: A Textbook of Histology, Philadelphia, W. B. Saunders Company, 1930.

10. Ryll-Nardzewski: The Intracutaneous Use of Gonococcus Vaccine, Przegl. Dermatol., 1928, p. 29; abstr. Ztscher. f. Urol. **24:** 373, 1930.

11. Goldzieher, M. A., and Peck, S. M.: Experimental Studies on the Reticulo-Endothelial System; Response to Infection, Arch. Path. & Lab. Med **3:** 629 (April) 1927.

gonococcus bouillon filtrate 195 persons in various stages of gonorrheal infection.

These were classified at their initial examination as follows: Men: acute, 86; subacute, 23; chronic, 42; total number of men treated, 151. Women: acute, 10; subacute, 5; chronic, 29; total number of women treated, 44. In addition, there were three girl babies treated solely by this method.

The shortest period in which the gonococcus was continuously absent from the secretions in the acute and subacute condition in the male was four weeks. In the acute infections in the female the shortest period was nine weeks. In chronic male infection the shortest period was one week; in the female, nine weeks. The longest period of observation in the male was ten months; this patient is still uncured. In the female, the longest period of observation was thirteen weeks. The general average from the initial injection to the apparent complete riddance of the gonococcus in acute urethritis in the male was ten weeks; in the female, twelve weeks. In chronic infection the period of treatment necessary to eliminate the gonococcus was considerably shorter than in the acute cases. This was equally true in men and in women. This was apparently due to the fact that the gonococci were localized in such areas as the urethral glands, the prostate and seminal vesicles in the male and in Skene's, Bartholin's and the endocervical glands in the female.

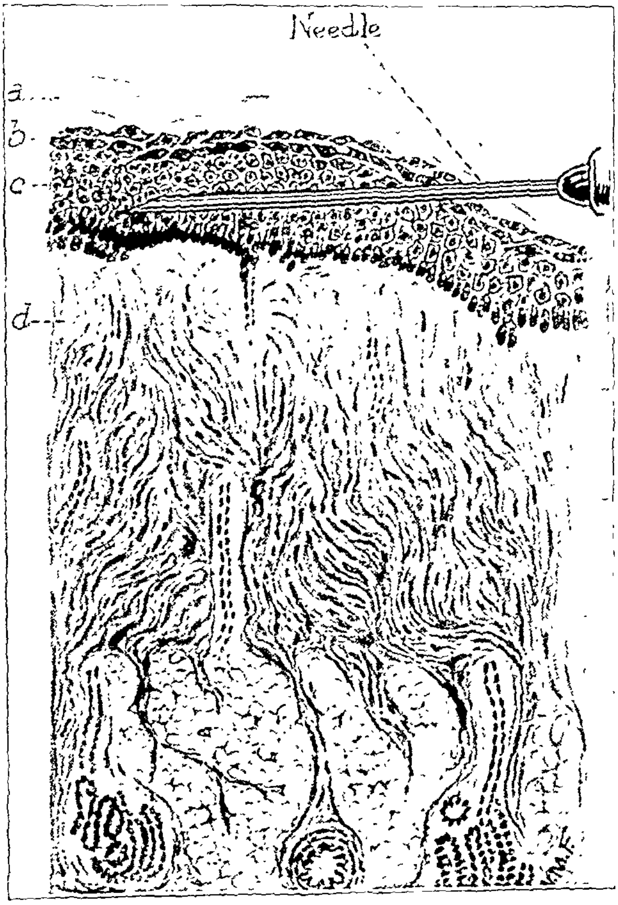

Fig. 2.—Section of the skin of the palm of the hand (reduced from a drawing with a magnification of about 150 diameters), showing site of intradermal injection: *a*, stratum corneum; *b*, stratum granulosum; *c*, stratum malpighii; *d*, stratum corium and fibrous bundles.

In this series are included five persons with gonorrheal arthritis; in every case the symptoms rapidly disappeared with intradermal medication and prostatic and seminal vesicle massage.

At the outset, owing to injections of too great an amount of bouillon filtrate, we occasionally produced a severe reaction in the male urethra which resulted in congestion and edema and at times acute posterior infection with a larger percentage of prostatitis and epididymitis than usual. With a more careful administration of dosage we have not only avoided these reactions but we have been able to reduce markedly the percentage of complications as compared with our previous methods of treatment.

In only two patients has there been any reaction suggestive of an anaphylaxis. These were of mild degree. Injections have been resumed after varying periods without untoward effect. In all, something over 2,500 injections have been given, the quantity varying from 0.1 cc. to 3 cc. per dose. The maximum dose now given is 1 cc., as described in detail elsewhere. The majority of patients have only a slight systemic reaction. Locally there is always a certain amount of discomfort at the site of injection, which continues for from twenty-four to seventy-two hours.

In some instances there is a slight febrile reaction for twenty-four hours. The temperature rarely rises above 100 F., and there is a mild toxic general effect.

The complement fixation test for gonorrhea, while not constant after an apparent complete immunization, was positive in a large number of patients.

Acute Gonorrhea in Men and Women

Duration of Infection	Size of Dose, Cc.
3- 7 days (1 week)	0.10
7-14 days (2 weeks)	0.25
14-21 days (3 weeks)	0.35
21-28 days (4 weeks)	0.50
28-35 days (5 weeks)	0.75
35-42 days (6 weeks)	1

No clinical research, however convincing, would be complete without having used the culture medium as an antigen.

From March 15 to June 1, 1931, twelve patients have been under observation at the Evanston Social Hygiene Dispensary. All these patients received intradermal injections of the culture medium. Two subacute and three chronic cases were followed consistently from week to week. While there was a salutary influence on some, the presence of the gonococcus in the discharge was easily demonstrable in all. Because of the irregular attendance and the shortness of the time of observation, no conclusions can be drawn from the other seven cases.

INDICATIONS AND DIRECTIONS FOR USING GONOCOCCAL BOUILLON FILTRATE

Gonococcal bouillon filtrate is indicated in acute and chronic neisserian infections in men, women and children.

It has been possible to standardize the dosage of the bouillon filtrate to meet every requirement.

The size of the first dose is in direct proportion to the duration of the infection.

The scale of dosage in the accompanying table ensures rapid immunization with no untoward effects.

The technic of intradermal injections is discussed later.

The size of the dose for the duration of infection is given in the table. For example, if the duration of the patient's infection is from three to seven days the initial dose would be 0.1 cc. Each succeeding weekly dose is increased in accordance with the scale given in the table until 1 cc. is given. If the duration of the infection is from twenty-eight to thirty-five days the initial dose would be 0.75 cc., increasing the following week to 1 cc.

When the dosage has reached 1 cc. in any case, this amount is continued at weekly intervals for from four to seven weeks until there is a clinical cure. It is always well to continue the injections for two weeks at least after the disappearance of the gonococcus; should there be a recurrence at this time, the intradermal injections may be resumed.

APPEARANCE OF DISCHARGE DURING TREATMENT

As this is active immunization and not passive, the discharge may not disappear until the fifth to the eighth week, or until at least from three to seven injections intradermally of 1 cc. at weekly intervals have been given, and it may not cease then; it may only cease entirely when there are no more organisms present and all injections have been suspended.

SUSCEPTIBILITY OF THE PATIENT

Occasionally following the dosage as outlined in the table, there is a severe local reaction in the urethra (local swelling, tenderness and inability to void). When this occurs, the size of the last injection given should be repeated after seven days and then increased, the next succeeding dose being used as outlined in the scale.

If an epididymitis occurs, the size of the last injection should be repeated in three days, to be followed in seven days by the next succeeding dose as outlined in the scale.

When there is prostatic involvement the usual procedure of massage should be followed; however, this should not be done until the acute symptoms have subsided and then not more frequently than at three to five day intervals.

SUBACUTE AND CHRONIC GONORRHEA IN MEN AND WOMEN

In every patient in whom the duration of the infection has been more than six weeks, an initial 0.5 cc. is given intradermally the first week and weekly injections of 1 cc. are continued until there is a clinical cure. Usually from six to eight weekly injections of 1 cc. will suffice.

Occasionally when severe edema and swelling of the urethra has persisted, it may be well to start with an initial dose of less than 0.5 cc.

When the prostate and the seminal vesicles are involved, prostatic and vesicle massage is indicated, the same as in acute cases.

GONORRHEAL ARTHRITIS

Gonorrheal arthritis is the most frequent type of metastatic gonorrhea. Almost any joint in the body may be affected and frequently the involvement is multiple. There is often present an accompanying synovitis, tenosynovitis or bursitis.

The knee joint is most frequently involved, but infection of the metatarsal, ankle, wrist, elbow, hip and shoulder joints also occur and are more frequent in the order given.

If gonorrheal arthritis occurs during the course of an acute gonorrhea, there is no difficulty in establishing the correct diagnosis. It is to be emphasized, however, that many chronically inflamed joints are diagnosed as "chronic gonorrheal arthritides." Gonorrheal arthritis may be recurrent but it is not, strictly speaking, chronic. When such a condition is chronic it is the result of adhesions and structural changes remaining as the result of previous acute gonorrheal inflammation.

In gonorrheal arthritis the complement fixation test on the blood is always positive if properly performed. In the absence of a positive test, and with negative smears and cultural observations from the genito-urinary tract, it must be concluded that active gonorrheal infection does not exist.

Frequently a septic infection from the teeth or tonsils is disregarded because the patient gives a history of a previous gonorrhea, and this evidence is unduly magnified as the possible etiologic factor of an acute arthritis.

The dose given here is the same as that described under subacute and chronic gonorrhea.

It is understood that the joints are to be immobilized and prostatic and vesicle massage instituted, together with the administration of the bouillon filtrate.

GONORRHEAL SALPINGITIS

The patient should be in bed and kept there until acute symptoms subside. Here the dose as outlined in the scale should be strictly adhered to. If the duration of the infection is more than six weeks, the initial dose should be 0.5 cc., followed by weekly injections of 1 cc.

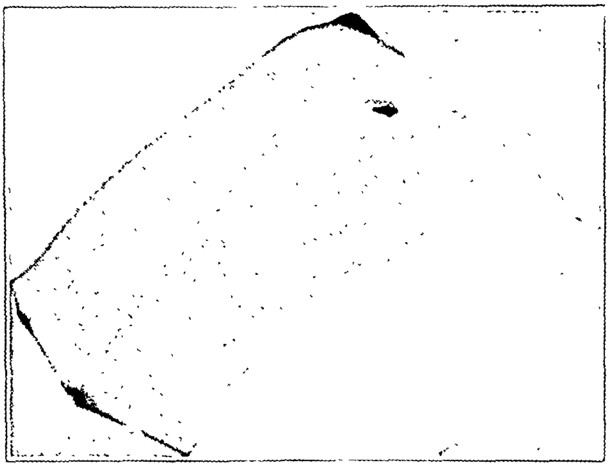

Fig. 3.—Arthus phenomenon. With repeated injections of an antigen in the same place in the skin, local tissue immunity occurs. This becomes so solid from the inflammatory reaction around the site of injection of the foreign protein that the injected material no longer gets into the circulation and eventually produces necrosis. The illustration shows the author's patient who had received seven injections intradermally of 1 cc. of gonococcal bouillon filtrate in approximately the same area in the thigh

INFECTIONS IN SKENE'S AND BERTHOLIN'S GLANDS

Directions as outlined for gonorrheal salpingitis should be followed.

NONGONORRHEAL INFECTIONS

Since the gonococcal bouillon filtrate is a specific for neisserian infections and no other infections, it is absolutely necessary that a positive diagnosis of gonorrhea has been made before instituting treatment. It should not be used unless one is sure of the diagnosis It is not a "cure all" for all urethral infections.

GONORRHEA IN CHILDREN

In gonorrhea in children, aged from 1 to 10 years the size of dose given for the duration of infection is as follows: 0.05 cc. for one week; 0.1 cc. for two weeks;

0.2 cc. for three weeks, and 0.25 cc. for four weeks. Then the dose of 0.25 cc. is continued once a week until the child is clinically cured.

As children show a hypersensitive reaction to intracutaneous injections, severe local irritation with bleeding may occur, if the dose has been too large. In this case the dose should be reduced for children showing such reactions as well as children, aged from 1 to 5 years, diluting the bouillon filtrate with an equal amount of sterile saline solution if necessary.

Caution should always be used not to increase the dosage too fast if there is considerable local irritation.

TECHNIC OF INTRADERMAL INJECTIONS

Any ordinary tuberculin syringe graduated in twentieths of a cubic centimeter will suffice. However, it is important to have a fine needle, preferably a 25 gage.

The most suitable site for injection is on the extensor surfaces of the arms and thighs. (In women the injections are given in the thighs.)

The needle is introduced parallel to the skin surface. As the thickness of the epidermis on the flexor surface is only about 0.2 mm., care should be used to advance the needle slowly with the oblique side upward into the papillary layer for about 0.5 to 0.75 mm. When the injection has been correctly placed, there appears a nontranslucent wheal, alabaster white, sharply circumscribed with a rose pink border, the needle shimmering through the epidermis.

ARTHUS PHENOMENON [12]

With repeated injections of an antigen in the same place in the skin, local tissue immunity apparently occurs. This becomes so solid from the inflammatory reaction around the site of injection of the foreign protein, that the injected material no longer gets into the circulation and eventually produces necrosis. This anaphylactic inflammation occurs, according to Opie,[12] because antigen and antibody have met in the tissue. This is known as the Arthus phenomenon.

In order to obtain general and not local tissue immunity it is advisable to put succeeding intradermal injections at least 6 inches apart from any previous injection.

55 East Washington Street.

ABSTRACT OF DISCUSSION

Dr. R. D. Herrold, Chicago: Dr. Corbus calls attention again to the fact that a great deal can be accomplished in gonorrhea without excessive local medication. Several years ago, working with this product and other bacterial vaccines, I was impressed by the marked improvement of patients who were getting only one local treatment daily as compared with the patients I had been treating three or four times a day. I feel that all would obtain better results, as I am at present, by not permitting any patient to use a syringe, himself, for local treatment, and by giving one injection daily or every two or three days. This must be taken into consideration in evaluation of a series of cases without such overtreatment. In treatment locally, one does not expect to get antiseptic action but stimulation of cells, and here I believe that the cells are stimulated sufficiently by injection every other day. These cells are probably some of the endothelial cells, such as the histiocytes. I shall consider first the product itself. After thorough experiment, I am convinced that the toxic substance in the broth is not essentially different from the autolyzed gonococcus, and therefore if the potency is the same the results will be the same, particularly if it is autolyzed in broth. One must distinguish between different immunologic reactions in the sense of obtaining an antibody that neutralizes toxin. This takes a period longer than seven days, and it is particularly significant that some immunizations, notably typhoid, which has stood the test of years, were produced by the subcutaneous route. Its potency per volume is similar to gonococcus. However, the local stimulation by intracutaneous injection suggests to me nonspecific benefit, and I believe it is entirely possible that such stimulation may be obtained, if of equal potency, by the typhoid toxin. Finally, in the control of a series of such cases one should include some nonspecific observations, and also one should not stop here in the effort to obtain a better biologic or chemical therapeutic measure in the treatment of gonorrhea, but should use this as the stepping stone since disagreeable reactions occur from gonococcic toxin, particularly with 1 cc. of a potency that will give a skin reaction with a dilution of 1 : 1,000.

Dr. P. S. Pelouze, Philadelphia: Dr. Corbus is to be congratulated on a valuable piece of experimental work. One should not lose sight of the fact that it is definitely experimental, however. Enthusiasm has been aroused so many times by various new treatments for this disease, only to be followed by disappointment, that it would be well to weigh new methods carefully. In this work, serious question could be raised regarding some of the arguments put forward. The proof of the value of any form of treatment rests in one's clinical experiences with it, and in judging the value of intradermal injections of Dr. Corbus' filtrate one is forced to use as standards the results obtainable by the best forms of treatment now existing. And, surely, so far as the time required to eradicate the gonococcus from the male is concerned, it is, by his own statements to me, much inferior to those treatments which have been in use. He informs me that his treatment eradicates the gonococcus in those cases in which only the anterior urethra is infected, rarely in six weeks and usually in from ten to twelve weeks. Our gently carried out local treatments to the urethra of the cooperating male usually accomplish this in six weeks. He further stated to me that it takes his method from six to eight weeks to banish the gonococcus from the patient with a posterior infection who has reached a stage wherein attack of the prostatic infection is safe. One can rarely find the gonococcus in the male who has had prostatic massage for that length of time. True, he still has infection kept up by secondarily invading bacteria, and needs further treatment. This is true also with Dr. Corbus' treatment. Considering the wide circulation of papers read at this meeting, it would be a great misfortune to allow ourselves and others to be too greatly impressed with the value of a treatment for gonorrhea which is so admittedly in its experimental stage that its makers do not feel sufficiently convinced of its value even to place the substance on the market. Particularly is this true when its seeming results compare so poorly with the results that can be obtained by other means.

Dr. Leo L. Michel, New York: About seven years ago, working in my clinic at the Hospital for Joint Diseases, I called attention to the good results obtained with the nonspecific protein. I reported that, following the intravenous injection of paratyphoid vaccines in acute gonorrheal arthritis, the joint pain and inflammation quickly subsided and the urethral discharge decreased. The course consisted of four injections of paratyphoid vaccine intravenously at intervals of from three to four days, though not infrequently the pain disappeared after the first injection. I was especially impressed with the complete disappearance of the gonococcus from the urethral secretions in cases in which I used this therapy. The results depended on the severity of the reactions obtained. The temperature had to be raised to 103 F. or higher; the severer the reactions were, the better were the results. This experience led me to try the intravenous nonspecific therapy in the acute gonorrheal infections. I had good results in a series of thirty cases, curing them in an average of from two to three weeks. I then ran into a series of failures. The failures were chiefly in the anterior gonorrheal infections; as a rule, the posterior infections responded. Just why this is so I cannot answer. It perhaps is analogous to the fact that this therapy is a failure in the gonorrheal periarthritis inflammation acting only in the inflammation of the articular joint. I never hesitate to use the nonspecific therapy in acute or in chronic anterior or posterior gonorrhea when time is a factor, if there are no contraindications.

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[12] Opie, E. L.: Pathogenesis of the Specific Inflammatory Reaction of Immunized Animals (Arthus Phenomenon): the Relation of Local "Sensitization" to Immunity, J. Immunol. 9: 259, 1924.

DR. A. I. FOLSOM, Dallas, Texas: Dr. Corbus gave me a lot of this solution and asked me to try it in my clinic. We have not yet tried it carefully but have limited it to the chronic cases, that group showing definite clinical manifestations, by which we might show the results of the thing, and I must say that Dr. King, my associate, who has had to do most of the work, is definitely impressed with the clinical value of the method in the chronic complications of gonorrhea. However, we are finding now that by varying the method of injection we are getting distinctly better results in the same type of case as compared with the old subcutaneous or intramuscular injections of milk. We are injecting a small dose of sterile milk intradermally in several areas rather than in one, and it seems to us that probably some of the results may be due to the difference in the method of administration rather than in the intrinsic value of the milk itself. Our experience is entirely too limited to make anything other than simply a suggestion in this direction.

DR. BUDD C. CORBUS, Chicago: Answering Dr. Pelouze concerning the length of time required to cure a given case of gonorrhea, I presume that he is referring to the treatment of gonorrheal infection in the male when he compares the intradermal injection of the gonococcal toxin and other methods of treatment. One must remember that one is using active immunization and not passive. In acute infection, immunization can only be accomplished slowly. On the other hand, in chronic infections, in which the gonococcus is localized, larger doses of toxin permit a more rapid, generalized immunization. The standardization of a method of treatment in acute gonorrheal infection, that requires only weekly injections for from eight to twelve weeks to produce a cure, is far superior to any other method with which I am familiar. The history of the management of gonorrheal infection in women and children is a sad story. Everything known in the realm of antiseptics has been tried. Unfortunately, in a large number of cases the gonococcal infected female remains infected until time and her own resistance finally put an end to the infection. It is just in this class of cases that standardized intradermal immunization with the gonococcal toxin produces the most brilliant results. In regard to Dr. Folsom's work, any nonspecific protein stimulates the reticulo-endothelial system, but a specific protein, either bacteria or their toxins, not only stimulates the reticulo-endothelial system but in addition causes formation of a specific antitoxin which, through the humoral and cellular defensive mechanism of the body, cures these infections. A new era is dawning in the treatment of all infections of the urinary tract. The treatment of colon bacillus pyelonephritis and cystitis by the local injection through a catheter of colon bacillus toxin has been favorably endorsed by Heitz-Boyer, LeFur, Mezeran, myself and others. The treatment of Hunner's ulcer has run the gamut of almost everything known in the realm of therapy. My experience has been most impressive with the removal of focal infection and the combined local applications and intradermal injections of the toxin of the specific organism present. The skin, as an immunizing organ, is far superior to that of any other organ in the body. Here the rich vascular supply of the true skin not only facilitates the formation of protecting substances but also acts as a depot for their dissemination to other parts of the body.

The "Strawberry" Gallbladder.—Moynihan, in 1909, first called attention to small yellowish spots like sand or grit on the mucosa of the gallbladder. In such cases he noticed also that the bile sometimes shimmered because of the presence of cholesterol crystals. . . . Boyd published the first detailed study of the pathology of this remarkable condition. He demonstrated the lipoid nature of the white or yellow deposits that are seen with the naked eye in striking contrast to the dark red background of the rest of the mucosa. By histologic and chemical means he also showed that these lipoid-like deposits were cholesterol, an observation, however, that Lichtwitz was really the first to make.—Elman, Robert; and Graham, E. A.: *Arch. Surg.* **24**:14 (Jan.) 1932.

IODOBISMITOL

A SOLUBLE BISMUTH PRODUCT FOR USE IN THE TREATMENT OF SYPHILIS: PRELIMINARY REPORT [*]

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SAN FRANCISCO

In our program of studies of antisyphilitic remedies, attempts have been made to test the possibilities for penetration of the brain by certain products. If an antisyphilitic agent could be depended on to do this, the prevention and treatment of neurosyphilis would begin at the time of treatment of acute syphilis. This mode of attack on neurosyphilis is desirable, since it is now accepted that Spirochaeta pallida invades the central nervous system early in the course of the disease. The commonly used antisyphilitic drugs cannot be depended on to penetrate the central nervous system without some previous treatment of the patient to increase the efficiency of penetration. Obviously, if a drug could penetrate unaided, the treatment would have decided advantages. The object of this report is to present a preliminary survey of results with a bismuth product which we have found to penetrate the brain.

The bismuth compounds in current use contain the bismuth as cation, or in basic form. The majority of reports in the literature state that bismuth is not present in the cerebrospinal fluid after the use of compounds of this type, and our results with such products, in very large doses, agree with those of the literature. The few positive results that have been reported are not convincing because of doubtful chemical tests or analytic procedures; and, in some instances, unusual quantities of bismuth are reported.

It is known that the anions bromide and iodide can penetrate the brain and appear in the cerebrospinal fluid, especially after meningeal irritation. In relation to the blood, the cerebrospinal fluid contains more anions and fewer cations. It is claimed by Strecker,[1] who quotes the work of others, that the diffusible cations do not penetrate as readily as the anions, thus suggesting a high order of penetrating efficiency of the latter. Of the ionizable organic salts, the salicyl anion is known to appear in the cerebrospinal fluid. This generalization with regard to anions, however, does not apply to such organic compounds as alcohol and methenamine (hexamethylenetetramine), which do not ionize but yet can appear in the cerebrospinal fluid. Since bismuth, as cation, does not readily penetrate the central nervous system and appear in the cerebrospinal fluid, it occurred to us to test the possibilities of bismuth, as anion. Furthermore, if this ion were combined with a penetrating anion, such as iodine, the

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[*] From the Department of Pharmacology and the Division of Neuropsychiatry of the Department of Medicine, Stanford University School of Medicine.

[*] Arrangements have been made with E. R. Squibb & Sons to market the product, which will be shortly available for distribution. The name "Iodobismitol" should be considered as nonproprietary and can be used only by the licensees.

1. Strecker, H. A.: J. Ment. Sc. 74:73 (Jan.) 1928.

possibility of a successful outcome with the bismuth appeared stronger. The presence of iodine in such a product would contribute to antisyphilitic action, if anything.

Although compounds of bismuth, as anion, or in acid form, are not commonly described in textbooks on chemistry, and are unknown to many chemists, such compounds are described in larger and special treatises.[2] The existence of bismuth in this form is more than plausible from the grouping of bismuth with arsenic and antimony in the periodic table. The facts are that bismuth is really a metalloid and is capable of existing as cation or anion in definite compounds. One of the anion, or acidic, compounds is obtainable in the market, namely, sodium bismuthate ($NaBiO_3$), the sodium salt of bismuthic acid. We have tried this compound in a short series of experiments and have demonstrated the presence of bismuth in the brains of animals, but it is practically insoluble in all ordinary and special solvents, and, after injection, remains as an unabsorbable depot.[3] On account of these objectionable features, further work with the bismuthate has been postponed until more promising leads have been explored.

The other anion, or acidic, bismuth compound is the hydro-iodobismuthous acid, which together with its potassium salt was first prepared by Arppe[4] in 1845. A review of the literature showed that a number of salts and esters of this acid had been prepared, but the information in most cases was meager, incomplete or indefinite; and generally the physical constants of the compounds were not given. Some authors gave crystallographic constants. Pending a summary of the literature on this subject in a separate paper, it will suffice to state here that the object of chemists, in preparing some of these compounds, was to verify the position of bismuth in the periodic system; i. e., its close association with arsenic and antimony. This was done generally by complicated and tedious methods of synthesis. It appeared that some of the products described might be mixtures rather than definite compounds, and others impure compounds, but the existence of certain isomorphous compounds (iodo-arsenite and iodo-antimonite)[5] made the claims of anionic bismuth convincing.

The first task was to prepare in pure form certain compounds which appeared promising for our use, and to identify the bismuth as anion. For this purpose, the sodium iodobismuthite was chosen. The chlor-, brom-, and sulfocyanbismuthites have been prepared, and also certain esters of iodobismuthite, but this report is limited to the sodium iodobismuthite. Since the compound is dissolved in ethylene glycol, the abbreviated name "iodobismitol," which indicates the essential chemical composition and suggests the solvent, has been adopted for the product. The following abstract gives a summary of the essentials of its chemical composition, properties and pharmacologic and clinical actions. The details will be published later, possibly in several papers, but it is believed that a summary is in order at this time in view of our promising results, and because it is desirable to obtain clinical data on a larger scale than we alone could possibly obtain for a long time.

METHOD OF PREPARATION AND PROPERTIES

Briefly, sodium iodobismuthite is prepared by the addition of a small excess of dry sodium iodide to a saturated solution of bismuth chloride or bismuth iodide, which, however, is not easily obtainable in the market, in anhydrous ethyl acetate until the reaction is complete. The whole is filtered to remove any sodium chloride or iodide, which is insoluble in ethyl acetate, and the filtrate is evaporated with the aid of a current of air at room temperature. The dry residue is treated with 95 per cent alcohol to form a concentrated solution and allowed to crystallize. The supernatant alcoholic solution is decanted and the crystals are dried at room temperature. The crystals are monoclinic and a brilliant red. Sufficient crystals to give a concentration of 6 per cent are dissolved directly in cold ethylene glycol, commonly known as glycol, containing 12 per cent of sodium iodide (dry). This solution is the iodobismitol. It is placed directly, without sterilization, into clean glass ampules containing 2 cc. each, for use by intramuscular injection.

Several iodobismuthites are possible, but we have limited ourselves to the crystals separating out from alcohol. According to chemical analysis of these crystals, the bismuth content is 23.5 per cent (average). When the product is more exactly controlled and purified, by appropriate measures, the final crystals appear to consist of a single compound with a bismuth content of 21.5 per cent (average) and the empiric formula appears to be $Na_2BiI_5 4H_2O$. The colored ion migrates to the anode without liberation of iodine and therefore the bismuth exists as anion, whereas the bismuth of bismuth sodium tartrate, in 25 per cent sucrose solution, migrates to the cathode and therefore would appear to exist in the latter compound as a cation. The question whether the iodobismuthite may be regarded as a double salt, in the older sense of potassium mercuric iodide, may be answered in the negative for reasons already mentioned, and also because the ionic migration of the mercury in potassium mercuric iodide is similar; i. e., the mercury migrates to the anode (positive pole). In these compounds, the metals exist as complex ions. The name "iodobismuthite" is, of course, well established in chemical researches on bismuth.[2] This matter is not pertinent here and will be discussed in a separate paper on the chemistry of iodobismuthite. Iodobismuthite is a reducing agent in alkaline solutions. The crystals give concentrated solutions in water without hydrolysis, and these may be diluted in the presence of sodium iodide, but dilution with water alone causes hydrolysis and precipitation. On the other hand, the crystals dissolve readily in glycol alone without hydrolysis, and the solution can be diluted with water within certain limits without turbidity. A certain amount of the glycol solution, but not of an aqueous solution, can be added to whole serum without precipitation, and with the addition of iodide the precipitation is prevented, so that a 23 per cent solution of iodobismitol in whole horse serum will not result in precipitation or will cause only a faint turbidity, and the color becomes yellowish. Aqueous solutions when injected are precipitated in the muscles, cause pain and irritation, and give irregular absorption, whereas the glycol solutions leave no yellowish precipitate or only a very slight one, and are practically nonirritating.

The effect of iodide varies with the conditions of usage. Used with iodobismuthite in glycol, a concentration of 10 per cent iodide is sufficient to prevent precipitation of whole serum (the end-concentration of iodide in the mixture is about 1.5 per cent), but this will vary with the quantities of both serum and iodobismitol. The addition of iodide to the serum first and then of the iodobismuthite in glycol requires much more iodide to prevent precipitation. In life experiments on guinea-pigs, 10 per cent iodide with iodobismuthite in glycol gave slight precipitation at the site of injection in some animals, but 12 per cent iodide resulted in no evidences of precipitation, and therefore the 12 per cent concentration was adopted.

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[2] Mellor: A Comprehensive Treatise on Inorganic and Theoretical Chemistry 9: 6 [illegible] buch für anorganische Chemie 3: 656, 1905. [illegible] der Kristallographie 1: 318, 1881. Groth: [illegible] 1: 440, 1906.

[3] Gurchot, Spaulding, Mehrtens and Hanzlik: Proc. Soc. Exper. Biol. & Med. 27: 509, 1930.

[4] Arppe: Poggendorff's Annalen 64: 237, 1845.

[5] Niclés: Compt. rend. Acad. d. sc. 35: 392, 1859; 50: 872, 1860; 51: 1097, 1860; J. de pharm. et de chim. 40: 321, 1861; Chem. Zentralbl. 1861, p. 239; 1861, p. 176; 1860, p 176

Other solvents for iodobismuthite besides glycol are glycerol, propylene glycol, alcohol and ethyl acetate, but not ether, chloroform, carbon disulphide, petroleum benzin, fixed oils and liquid petrolatum. Of these solvents, only the glycerol offered immediate possibilities as a vehicle for injection, but comparisons with glycol in patients showed that from 2 to 3 cc. quantities of glycerol were somewhat more irritating and painful than the same quantities of glycol; in fact, injections of glycol were generally no more objectionable than the introduction of the needle alone. Moreover, glycol is more mobile (less viscous), spreads more readily and evenly, is easier to handle, and is more antiseptic and apparently less toxic than glycerol.[6] Therefore, the choice of solvent fell on glycol. In glycol, the iodobismuthite is not dissociated and it is partly in chemical combination, since the bismuth compound can be distilled and, after extraction with chloroform or ether and evaporation of the chloroform or ether of the extract, a reddish brown residue remains containing the organic compound. These properties explain, in part at least, the comparative nonirritant action of the glycol solution. The iodide prevents precipitation and hydrolysis and thus promotes absorption of the compound, but in what form exactly we are not prepared to state. Thus, the use of glycol as a solvent permits the use of an inorganic compound of bismuth for injection. Other bismuth and metallic salts will probably be found to be soluble in glycol, but we have not found the subcarbonate, subnitrate and subgallate of bismuth, and bismuth sodium tartrate (Searle) to dissolve. Bismuth salicylate dissolves to a small extent after heating, but, on cooling, separates out. After solution with the aid of alkali, the tartrate, subgallate and subsalicylate can be freely diluted with glycol without precipitation.

ACTIONS OF IODOBISMITOL

Local Irritation.—This has been found to be so small as to be practically negligible with doses coming within the therapeutic range injected intramuscularly. Many patients have been unable to discriminate between injection of the product and injection of a corresponding volume of glycol, but a difference from a corresponding volume of saline solution could be recognized by the presence of some local soreness which, however, disappears quickly, so that patients have no objection to repeated injections. One of us (C. C. J.) who received an intramuscular injection of iodobismitol experienced only a slight burning sensation locally for about one hour without any other changes later. There have been no demonstrable local inflammatory changes and no abscesses among a total of 120 patients to date receiving repeated injections; only five patients, who had received many previous injections of mercury or of bismuth or were in poor condition from advanced syphilis, had some local induration following a number of injections of iodobismitol. Some few patients have complained of a greater local, though temporary, burning sensation than others. Other bismuth products in aqueous and oily mediums have not been as well tolerated and have caused local changes. Dozens of guinea-pigs, rabbits and rats have been injected with corresponding and higher doses of iodobismitol without evidences of local irritation or abscess formation. With the highest doses and with concentrations above 30 per cent of the compound employed in determining fatal dosage, some hardening of muscle and local precipitation has been found, but these conditions do not obtain in therapeutic usage. In rabbits, iodobismitol caused some lacrimation, slight hyperemia and a slight and temporary chemosis, which was indistinguishable from that of glycol alone, whereas the same strength of iodobismuthite and iodide in water caused definite chemosis, and iodide in water did not. Accordingly, there would seem to be some small degree of irritation in sensitive regions, such as the conjunctiva or mucosa, but not in muscle, in sensitive individuals and in those with lowered tissue resistance.

Toxicity.—Thirty-nine of forty adult patients have received total quantities up to 2.2 Gm. of the compound (with and without iodide), equivalent to 0.519 Gm. of bismuth, within three weeks without evidences of systemic toxicity, one injection being given every three days. Among the remaining eighty patients, many have received total quantities up to 6.4 Gm. of compound (1.5 Gm. of bismuth) over longer periods without demonstrable injury. Guinea-pigs receiving total doses of from 5 to 115 mg. (bismuth ion) per kilogram of the compound intramuscularly, in divided doses over periods of from seven to sixty-one days, showed the usual fluctuations, or no changes, in body weight. Albuminuria has not been demonstrated, even in two patients who showed salivation—one patient after 1.2 Gm. of the compound in ten injections on alternate days, and the other, after 2.16 Gm. in eighteen injections. The kidneys have been examined after repeated small doses in guinea-pigs with the following results: no demonstrable changes after a total of 20 mg. of iodobismuthite (4.72 mg. of bismuth) per kilogram; after from 37 to 82 mg. (from 8.7 to 19.4 mg. of bismuth), variable, moderate congestion and cloudy swelling; above 82 mg. per kilogram, marked congestion and cloudy swelling. The total therapeutic dose in a man weighing 70 Kg. and receiving one course of ten 2 cc. injections, or 1.2 Gm. of iodobismuthite, the equivalent of about 4 mg. of bismuth per kilogram, is about four fifths of, and after twenty 2 cc. injections, or 2.4 Gm. of iodobismuthite, equivalent to 8.1 mg. of bismuth per kilogram, only three fifths more than the doses which gave no demonstrable changes in guinea-pigs. After four courses of ten 2 cc. doses, or 4.8 Gm. of iodobismuthite, equivalent to 16.18 mg. of bismuth per kilogram, the total dose would be about equal to the median dose causing variable and moderate congestion. Since a large part of the bismuth is excreted, it would appear that three or four courses spaced by short intervals could be given with safety so far as renal irritation is concerned. Other experiments and clinical observations, which we hope to report separately, show that the dosage of glycol in iodobismitol, used in single and repeated doses, is far too small to cause the experimental oxaluria or calculi of very high and toxic doses reported in the literature; in small doses the glycol is presumably completely oxidized in the body.

The determination of fatal doses of iodobismitol in animals has thus far given certain difficulties owing to the large volumes necessary in which the toxicity of glycol must be considered. The following dosages have been obtained with iodobismitol intramuscularly: The minimal fatal dose in rats was about 0.106 Gm. of iodobismuthite (24 mg. of bismuth) per kilogram, and in rabbits more than 0.127 Gm. of iodobismuthite (30 mg. of bismuth) per kilogram. With 10 per cent iodobismuthite in glycol alone, the minimal fatal dose in rats was less than 0.13 Gm. (30.7 mg. of bismuth) per kilogram. Solutions of iodobismuthite in glycerol gave somewhat smaller fatal doses than the glycol solutions. The use of very concentrated solutions (from 30 to 50 per cent) in glycol or glycerol caused precipitation and irregular absorption, with a consequent increase in the size of the fatal dosage. Intravenously, the fatal doses of iodobismitol were as follows: The minimal fatal dose in rats was about 0.03 Gm. (7 mg. of bismuth) per kilogram, and in rabbits about 0.063 Gm. (14.9 mg. of bismuth) per kilogram. Iodobismuthite without iodide caused embolism. The data are being amplified in several ways, but, in general, the margin of safety is sufficiently indicated by the fact that the intramuscular fatal dose of iodobismuthite was about 62 times, and the intravenous fatal dose about 18 times, the single therapeutic dose. *Intravenously, the toxicity of iodobismuthite appears to be no greater than that of the bismuth sodium tartrate* (Searle). From these results, and also from the fact that intravenous injections of 3 cc. quantities in three patients were symptomless, subjectively and objectively, accidental vein injection should not be harmful.

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[6] Fuller: J. Indust. & Engin. Chem. 16: 624, 1924.

Absorption and Excretion.—Fifty-nine of sixty-three guinea-pigs receiving daily divided doses within the therapeutic range, i. e., from 5 to 115 mg. per kilogram, with a sojourn of the compound of from seven to fifty-one days, have shown either no evidences of the compound at the site of injection or only a slight yellowish color in the muscles. Four patients receiving up to 2.2 Gm. (0.519 Gm. of bismuth), in from twelve to eighteen divided doses, showed no shadows on roentgen examination of the injected areas one month and six weeks after the last injection. One patient who had received twenty doses on alternate days showed slight shadows in three or four of the injection sites at the end of the twentieth injection. Two patients showed no shadows six hours, and one, two and three days after injection of single doses of 2 cc. Correlated with these results, which suggest a rather complete and rapid absorption, is a high urinary excretion of bismuth. Two ambulatory human subjects receiving a total of 0.1 Gm. each of iodobismuthite (0.0236 Gm. of bismuth) excreted 75 and 80 per cent of the total administered at the end of twenty-four days. A rabbit excreted 44 per cent of 0.043 Gm. (0.01 Gm. of bismuth) at the end of twenty-two days. The data in other subjects and rabbits are not yet complete, but all the results point to a more rapid excretion of bismuth than after the bismuth metal and bismuth compounds in oil. In general, the total urinary excretion of bismuth after iodobismitol compares with that after bismuth sodium tartrate (Searle), which has given a median of about 45 per cent after similar doses; i. e., after 0.03 Gm. of compound, equal to 0.022 Gm. of bismuth, but the rate of excretion may be slower.

As to the form in which the bismuth of the iodobismitol is absorbed and excreted, nothing is known, but we hope to investigate these questions later. A part of the compound is undoubtedly hydrolized at the site of injection, but it is believed that a part is absorbed as such. The yellow precipitate occurring locally on muscle suggests the hydrolysis, but this is by no means always present, except with very high concentrations.

Penetration of the Brain.—This has been the main object of attention in our experimental work. The results have been obtained mainly in guinea-pigs and rabbits given injections mostly in doses falling within the therapeutic range, thus differing from most results of the literature, which have been obtained with toxic and fatal doses of other bismuth products. Of forty-one guinea-pigs receiving the iodobismuthite in glycol, with and without iodide, in doses of from 19.6 to 451 mg. (equivalent to from 4.6 to 106.4 mg., median 17.2 mg., of bismuth) per kilogram intramuscularly, in daily divided doses during periods of from five to thirty-nine days (median, eighteen days), thirty-eight, or 92.7 per cent, showed the presence of bismuth in the brain and blood. The amounts demonstrated ranged from about 0.003 to 0.7 mg. (median about 0.1 mg.) of bismuth per hundred grams of brain. Of eight rabbits receiving subtoxic and fatal doses (from 164 to 1,300 mg., the equivalent of from 38.7 to 306.8 mg. of bismuth per kilogram intramuscularly) during periods of from one to seventy-three (median, six) days, all showed bismuth in the brain, as did also seven out of eight rabbits receiving the iodobismitol intravenously. The rabbits given intramuscular injections showed a median of about 0.2 mg. of bismuth per hundred grams of brain, and those intravenously, less; i. e., about 0.08 mg. These quantities of bismuth appear small, but it must be borne in mind that the total dosage employed, particularly in guinea-pigs, was small.

The accuracy of the method permitted the recovery of added quantities of bismuth coming within the range of the results after iodobismuthite. The added precaution was employed of analyzing simultaneously the bismuth content of the blood, liver, kidney and brain and eliminating all experiments in which the kidney did not show the largest amount of bismuth per gram. Except for an occasional accident in analysis, it was invariably true that the kidney contained the most bismuth, thus indicating a typical distribution of bismuth after iodobismuthite as after other bismuth compounds. The concentration of bismuth in the brains of about one-half the number of guinea-pigs was somewhat less than in the blood, but in the remaining half it was the same or somewhat higher (median, 0.1 mg. in 100 Gm. of blood, or 1 : 1,000,000). This suggests a fairly even distribution between the blood and brain. The brain content of bismuth could not be due to the blood of the brain, since the latter contains only about 1.24 per cent of its weight of blood (Vierordt). It was not possible to obtain sufficient cerebrospinal fluid from the animals for analysis, but the spinal fluid of one rabbit gave a positive test for bismuth. In two moribund patients injected with iodobismuthite, the brains showed the presence of bismuth. How much of the bismuth appears in the brain as cation, and how much as anion combined with iodine, is not known.

Cerebrospinal Fluid of Human Subjects.—Of forty human subjects with cerebrospinal syphilis or dementia praecox, thirty-seven, or about 92 per cent, showed the presence of bismuth. The quantities in the positive cases ranged from 0.001 to 1.162 mg. of bismuth per hundred cubic centimeters (median, 0.005 mg., or about 1 : 20,000,000 concentration). This low concentration would be expected, since the most that could be in the tissues is a concentration of 1 : 2,650,000 of bismuth after a single dose of iodobismitol, and of 1 : 265,000 after ten doses, on the assumption of complete absorption and retention. However, most of the bismuth is excreted, so that if only about one-fifth the total given remains in the body, the bismuth concentration in the brain may be closer to 1 : 10,000,000, which makes the low concentration found by us in cerebrospinal fluid understandable. These tissue concentrations of bismuth after iodobismitol would be comparable with those after the dosage of bismuth necessary for antisyphilitic action, according to Lomholt,[7] who suggests 0.5 mg. of bismuth per kilogram daily (1 : 2,000,000), and a total dosage of 5 mg. of bismuth per kilogram (1 : 200,000). The total dosage of the iodobismuthite in glycol, with and without iodide, was from 0.7 to 2.2 Gm. (median, 1.71 Gm., or 0.404 Gm. of bismuth) intramuscularly in from three to twelve divided doses. In six patients, the bismuth was demonstrated in the cerebrospinal fluid at the end of eighteen days after the injection of the first dose of iodobismuthite, and bismuth was still present in the spinal fluid two weeks after the last dose was given. Although the quantities of bismuth in cerebrospinal fluid were small and variable, there is no doubt that positive tests, at least for bismuth, were obtained in the great majority of subjects, and iodide was not indispensable to the appearance of the metal.

On the other hand, thirteen out of seventeen cerebrospinal fluids from as many patients receiving total doses of from 0.2 to 16.9 Gm. (median, 9.2 Gm.) of bismuth in the form of bismuth metal, potassium bismuth tartrate in oil or bismuth salicylate in oil, in divided doses intramuscularly, showed no bismuth and two of the four positive tests were doubtful. The dosage of bismuth in the latter patients was, of course, much greater than that in the patients receiving the iodobismuthite. The doses of iodobismuthite per kilogram in the animals were about twice the doses of the compound in patients. Therefore, it is planned to increase the dosage in patients with the view to increasing the content of bismuth in the brain and cerebrospinal fluid, although this may not ultimately prove desirable or necessary, since the antisyphilitic concentration of bismuth is exceedingly minute. The results obtained thus far with iodobismitol indicate that the product can be depended on to penetrate the brain in the majority of individuals.

After most of our work with older products of bismuth and iodobismuthite had been completed or started, bismuth sodium tartrate (Searle) was accepted for New and Nonofficial Remedies. Experiments with this water-soluble bismuth, with and without the administration of iodide, are under way in both man and animals to see how the cerebral penetration of this bismuth product will compare with the iodobismuthite, but the results are too incomplete to warrant a statement at this time.

Antisyphilitic Action.—Iodobismitol has been tested for its action on syphilitic virus in the experimental syphilis of rabbits and in clinical syphilis with definite effects. In thirteen rabbits that were used in prophylactic experiments on scrotal chancres, iodobismuthite, in doses of from 0.03 to 0.2 Gm. per kilogram intramuscularly, prevented the appearance of lesions during a period of three months, whereas seven untreated rabbits showed fully developed lesions containing spirochetes at the end of from sixteen to thirty days. Pairs of rabbits treated with bismuth sodium tartrate (0.01 Gm. per kilogram) and sodium bismuthate (0.032 and 1 Gm. per kilogram) intramuscularly showed no lesions during periods of from three to six months. Of two rabbits treated with neoarsphenamine intravenously (0.025 Gm. per kilogram), one showed positive lesions at the end of fifty-four days. Lymph node transfers from the rabbits receiving iodobismuthite (over 0.03 Gm.), bismuthate and bismuth sodium tartrate were negative, but the majority of untreated controls were positive.

In curative experiments on rabbits with developed chancres, using all drugs per kilogram intravenously in weekly injections for from two to three weeks, the results were as follows: After iodobismuthite, 0.04 to 0.1 Gm., the lesions in thirteen rabbits were free from spirochetes in twenty-four to forty-eight hours and healed in from two to five weeks earlier than the controls. In ten rabbits receiving total doses of from 0.015 to 0.0375 Gm., the acute lesions were unaffected. In pairs of rabbits after bismuth sodium tartrate, 0.025 Gm., the lesions were spirochete-free at the end of forty-eight hours and healing occurred at the end of seventeen days; after bismuthate, 0.4 Gm., the lesions cleared at the end of seventy-two hours and healed at the end of twenty-one days; after neoarsphenamine, 0.075 Gm., intravenously, the lesions cleared at the end of four hours and healed at the end of nineteen days. The lesions of the twelve untreated controls showed spirochetes until the end of twenty-eight days and did not heal until the end of forty-nine days (medians). Lymph node transfers from the majority of rabbits receiving a total of 0.05 Gm. and over of iodobismuthite per kilogram were negative at the end of three months, but a considerable proportion of those receiving less than 0.04 Gm. per kilogram and most of the untreated controls were positive. Lymph node transfers after the other drugs were not obtained.

Our results in clinical syphilis are limited on account of the difficulties of obtaining acute, untreated cases. The clinical material under the direction of one of us (H. G. M.) does not yield such cases and the work must be delegated to others. The following data were obtained for us by Drs. H. E. Alderson and Esteban Reyes of the Stanford Dermatological Clinic. Each patient received 2 cc. of iodobismitol, containing 0.12 Gm. of iodobismuthite, every three days. Patient G. G., with symptoms of primary syphilis and spirochetes in a tonsillar ulcer, responded with clearing of the spirochetes and healing of the lesions at the end of the third injection of iodobismitol (total, 0.36 Gm. of iodobismuthite). Patient V. E., with secondary syphilis, responded with clearing of the spirochetes from papules at the end of the third injection (0.36 Gm. of iodobismuthite), and healing of skin lesions at the end of five injections (0.6 Gm. of iodobismuthite). Patient W. W., with symptoms of secondary syphilis, responded with disappearance of the roseola at the end of the fourth injection (0.48 Gm. of iodobismuthite). The Wassermann reaction has remained positive, but full courses of treatment have not yet been given and negative tests would not yet be expected. The injections have been tolerated without local or systemic reactions. After this summary was in proof, Drs. Alderson and Reyes reported that clearing and healing of acute lesions in eight additional patients occurred after from three to thirteen (average five) injections of iodobismitol; the Wassermann reaction remained positive in positive cases and negative in the negative cases.

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[7] Lomholt: Brit. M. J. 2: 887 (Nov. 16) 1929.

The main value of our results in experimental and clinical syphilis is the demonstration of a definite spirocheticidal action of the bismuth in iodobismitol. This would be expected of an absorbable bismuth product. As for the efficiency and permanence of the curative action, the results with iodobismitol may be expected to be the same as with any readily absorbable bismuth. In neurosyphilis, it is reasonable to believe that fully as much and more may be expected of iodobismitol, since our results indicate the appearance of bismuth in the brain and cerebrospinal fluid. The impression of one of us (H. G. M.), based on results with fifty patients to date, is that iodobismitol is certainly as effective as, and probably superior to, other bismuth products, but a longer trial and more cases are necessary before a definite opinion can be given. Consequently, iodobismitol would seem peculiarly adapted to the prevention and treatment of neurosyphilis from the beginning of the treatment of acute syphilis. Whether such treatment should be combined with the arsphenamines is a matter that does not come within the scope of this paper.

PROPOSED DOSAGE

The following dosage is proposed on the basis of our experience to date: Two cubic centimeters of iodobismitol should be injected intramuscularly thrice weekly, the needle being emptied with a little air and the part being gently massaged after each injection. Two days should be left free between injections. Up to ten or twelve successive injections may be given within four weeks as a single course of treatment, and from three to four courses, with periods of about two weeks' rest between courses. As stated in the text, bismuth has been demonstrated in the cerebrospinal fluid after a course of ten injections. In case of salivation or stomatitis, the injections should be stopped and a short period of recovery allowed. These signs in the mouth are the inevitable result of effective bismuth therapy and do not necessarily call for special treatment unless severe.

In a recent review of bismuth compounds used in the treatment of syphilis, Lomholt[7] suggests, on the basis of extensive experience, that the daily dose for antisyphilitic action should be the equivalent of about 0.5 mg. of bismuth per kilogram of body weight, and that a total of from 4 to 5 mg. of bismuth per kilogram should be given in one course. It will be seen that the proposed dose of iodobismitol agrees closely with Lomholt's recommendation; namely, the equivalent of 0.47 mg. of bismuth per kilogram for a person weighing 60 Kg., or 0.41 mg. for one weighing 70 Kg., and a total of 4.5 or 4.1 mg. per kilogram during a single course of ten injections. For various reasons, Lomholt indicates a preference for the bismuth oxychloride in suspension. Iodobismitol is hydrolyzed, in part at least, to a related compound, bismuth oxyiodide, which would act similarly to the oxychloride. Hence, it appears to be more than a coincidence that the oxychloride should, through empiric choice, possess desirable properties, in view of our results with the iodobismitol.

CONCLUSIONS

1. A preliminary report is submitted on the properties and actions of iodobismitol, a soluble and injectable preparation of bismuth, containing the bismuth as anion. Theoretical considerations for using bismuth in this form are given.

2. Iodobismitol consists of sodium iodobismuthite (6 per cent) dissolved in ethylene glycol containing sodium iodide (12 per cent). It is injected intramuscularly in doses of 2 cc. containing 0.12 Gm. of iodobismuthite (equal to 0.0236 Gm. of bismuth), a proposed course of treatment consisting of ten injections in about three weeks, to be followed by a rest period and additional courses as further experience may indicate.

3. Used in doses within the therapeutic range, iodobismitol was found to be generally well tolerated locally and systemically, to be fairly rapidly absorbed and excreted, to possess antisyphilitic action, to penetrate the brain of animals, and to appear in the cerebrospinal fluid of human subjects.

Accordingly, iodobismitol possesses certain advantages over the bismuth products in current use which contain the bismuth as cation and do not dependably penetrate the brain.

4. Iodobismitol appears worthy of clinical trial in the treatment of syphilis since it offers the possibility of early treatment, and of prevention, of neurosyphilis.

Sacramento and Webster streets.

NARCOLEPSY

RESULTS OF TREATMENT WITH EPHEDRINE SULPHATE *

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We[1] first gave ephedrine sulphate for narcolepsy, Sept. 9, 1930. Now that practically one year has elapsed, it seems desirable to analyze the results of this form of treatment in order to determine, so far as possible, its value. Priority in the use of ephedrine belongs to Janota[2] and Skala,[3] who reported its use in the treatment of narcolepsy at the meeting, June 21, 1930, of the Neurological Society of Prague. Although the report was exceedingly brief, it is evident that these authors obtained favorable results. At the time we first used the drug we had no knowledge of its previous use, since the proceedings of the meeting at Prague were published only in the October number of the *Revue neurologique,* which was received in the United States of America about November 23.

Narcolepsy is characterized by attacks of irresistible sleep, without apparent cause, and in most instances by spells of weakness on emotional stress, particularly on laughing. The latter symptom is often referred to as cataplexy. In addition, these patients frequently gain in weight and may suffer from hypnagogic hallucinations, transient attacks of diplopia, and disturbed nocturnal sleep.

RESULTS IN CASES NOT TREATED WITH EPHEDRINE

In order to estimate the value of any method of treatment, it is necessary to have an accurate concept of the disease in cases in which that treatment has not been used. Accordingly, patients suffering from narcolepsy, who had been examined between Jan. 1, 1919, and

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* *From the Section on Neurology, the Mayo Clinic.*

[1] Daniels, L. E.: Symptomatic Treatment for Narcolepsy, Proc. Staff Meet., Mayo Clin. **5:** 299-300 (Oct. 22) 1930. Doyle, J. B., in discussion on Daniels, L. E.: Ibid., p. 300.

[2] Janota, M., in discussion on Pelnar: Narcolepsie avec catalepsie, Rev. neurol. **2:** 427-428 (Oct.) 1930.

[3] Skala, M., in discussion on Pelnar: Narcolepsy avec catalepsie, Rev. neurol. **2:** 428 (Oct.) 1930.

Sept. 1, 1930, were written letters of inquiry. Information was obtained in sixty-seven cases.

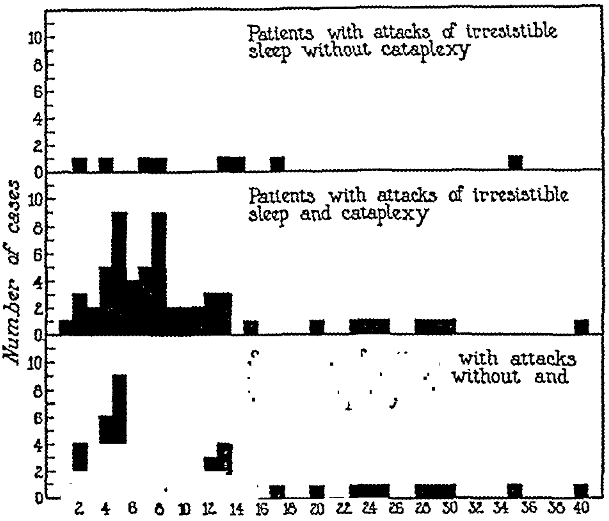
The accompanying chart shows the duration of symptoms at the time of reply to the letter of inquiry, or at the time of death. It also shows the duration of symptoms of the fifty-nine patients who had somnolent attacks and cataplectic seizures, and of the eight who had attacks of irresistible sleep only. It will be seen that the majority of the cases were of four to eight years' duration at the time of reply to the inquiry. One of the patients was subjected only to somnolent attacks for seventeen years, and one for thirty-five years. In one case cataplectic seizures developed after the patient had had somnolent attacks for sixteen years.

Four patients died. One of them was a man, aged 39, who had had somnolent and cataplectic attacks for four years and who died suddenly a few days after he returned home. He had received treatment by roentgen rays over three fields: a frontal, a right temporal and a left temporal. The dose used was about three-fourths erythema dose on the surface, and, by cross-fire, should have produced approximately 60 per cent of the surface dose in the region of the floor of the third ventricle. Although it is well known that the hypothalamic region is very resistant to irradiation, it is conceivable that some latent process may have been activated to the point at which it could have produced death. Such an assumption, however, would be purely speculative. Seven other patients suffering from narcolepsy, who were similarly treated, did not sustain any untoward symptoms attributable to this form of treatment. Another one of those who died was a woman, aged 42, who had had attacks of irresistible sleep and cataplexy for thirteen years and who died from pelvic infection several months after returning home. A third death was that of a man, aged 46, who had somnolent attacks only, and who died following an illness of a few days, one year after his visit to the clinic. The somnolent attacks had become more frequent and prolonged. This patient's blood gave a positive Wassermann reaction; the cerebrospinal fluid was negative in detail. The fourth patient of those who died was a man, aged 43, who had had only somnolent attacks for six months at the time of admission. He died at home one year later, three and a half hours after tonsillectomy under anesthesia with cocaine. Careful anatomic examination of the brain was not made in any of these cases.

Table 1.—*Course of Narcolepsy (Patients not Given Ephedrine)*

Patients traced		67
Improved		30
Markedly	4	
Moderately	4	
Slightly	8	
Very slightly (one without cataplexy)	14	
Same (four without cataplexy)		25
Worse (one without cataplexy)		8
Died (two without cataplexy)		4

Table 1 represents an attempt to estimate the progress or course of the disease as it affected the sixty-seven patients who were traced. Of the four patients who were markedly improved, one, a man aged 46, had had disturbed nocturnal sleep, with many dreams, for twenty years. In the last three years prior to his admission, however, the dreams had become horrible. For the same period of twenty years he had been subject to attacks of irresistible sleep. This tendency had become worse in the last ten years. Four years before his admission to the clinic, and sixteen years after the onset of diurnal somnolence and disturbed nocturnal sleep, he had begun to have cataplectic seizures. From a letter received four years after his visit to the clinic, it was learned that he was much better. In addition, he wrote: "I still fall asleep at times but do not collapse as formerly." The second of these four patients, a youth aged 17, who, eleven months before admission, began to have attacks of irresistible sleep, and spells of weakness on laughing, stated that his attacks of irresistible sleep had ceased five months after the onset, following lumbar puncture and withdrawal of cerebrospinal fluid. The cataplectic attacks had persisted. One and a half years after his admission the patient wrote: "I am entirely well except for slight spells of weakness." The reaction of this patient to drainage of spinal fluid resembles those of the two patients described by Lhermitte.[4] One patient, who had shown moderate improvement, had suffered from the syndrome for thirty years. It is our opinion, confirmed in several instances by voluntary statements of patients, that apparent improvement is often the result of adjustment or adaptation to the syndrome rather than to change in fundamental symptoms. The remaining two cases in which there was marked improvement will not be commented on.



Duration of symptoms at time of inquiry (years).

Of the twenty-five patients who reported that their condition was the same as when they were seen at the clinic, eleven had had the condition for ten or more years; in four cases symptoms had persisted for twenty-five, twenty-nine, thirty-five and forty years, respectively. Of the eight patients who reported that their symptoms were worse, there was one whose symptoms dated back twenty years. It is apparent that narcolepsy runs a chronic course without any marked tendency to self limitation.

RESULTS IN CASES TREATED BY EPHEDRINE

Follow-Up Data on Cases Previously Reported.—Our[5] results with the use of ephedrine sulphate in the treatment of six patients with narcolepsy, up to December, 1930, have been published. An effort has been made to keep in touch with these patients. The first patient, a man aged 20, apparently was completely relieved for several months. Subsequently the drug became less and less effective and his symptoms became more severe. Efforts to adjust the dosage were unsuccessful. Anterior lobe of the hypophysis was given for three weeks without success. In the second case, that of a boy aged 11 years, the medicine continues to be effective in controlling symptoms at the end of nine months. A woman, aged 43, whose case was the third, continues to show marked improvement at the end of nine months. She has an occasional mild cataplectic seizure. This patient usually takes 50 mg. of ephedrine but once daily, at 10 a. m. In the fourth case, that of a man aged 25, there is improvement but not complete relief from taking 75 mg. of ephedrine three times a day. The hypnagogic hallucinations now trouble this patient only when ephedrine is not taken sufficiently late in the evening or when he is excessively fatigued. This man's work necessitates his being active until 2 a. m. The fifth case was that of a woman, aged 57, who was completely relieved with small doses. Six months after she had left the clinic she informed us that she had discontinued treatment in spite of symptomatic relief, because no curative effect was to be expected. The sixth patient, a woman, aged 42, who had had symptoms for twenty-eight years, has been completely relieved for nine months. This patient lives nearby and has been carefully observed. When the use of ephedrine was stopped in April, 1931, for one week, the symptoms of somnolence and cataplexy returned.

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[4] Lhermitte, J., and Nicolas, Maurice: Narcolepsie, cataplexie et pyknolepsie, leur intrication chez un même sujet, Gaz. d. hôp. **102:** 585-589 (April 17) 1929. Lhermitte, J., and Roques, A.: L'influence de la ponction lombaire dans la narcolepsie en apparence idiopathique, Rev. neurol. **1:** 93-95 (Jan.) 1929.

[5] Doyle, J. B., and Daniels, L. E.: Symptomatic Treatment for Narcolepsy, J. A. M. A. **96:** 1370-1372 (April 25) 1931.

Table 2.—*Summary of Symptomatic Treatment of Narcolepsy with Ephedrine Sulphate*

Results	Patients Treated by the Authors: Prior to Dec. 1, 1930	Patients Treated by the Authors: Subsequent to Dec. 1, 1930	Patients Seen at Clinic, Treated by Family Physicians	Cases Reported by Correspondence	Cases from the Literature	Totals
Complete relief....	2	10	5	3	..	20
Improvement						
Marked........	3	5	7	1	1	17
Moderate......	0	2	1	3	2*	8
Temporary....	1	1	0	0	0	2
Uncertainty........	0	0	1	0	0	1
Failure............	0	0	1	0	1	2
Totals.........	6	18	15	7	4	50

* Patients treated by Skala with ephedrine, hypodermically.

Data on New Cases.—Since submission of our second report for publication, we have treated eighteen additional cases of typical narcolepsy. The results in these eighteen cases are included in table 2. In four of these cases, we have learned that complete relief persists after periods of five months in one, four months in two, and three weeks in one. In six other cases, complete relief was obtained during the period of observation in Rochester, which varied from three to five days; follow-up data are not yet available. One of these six patients did not have cataplexy. Another of these six patients, aged 33, who had had increasingly severe symptoms of Raynaud's disease, involving chiefly the hands, had submitted to cervicothoracic sympathetic ganglionectomy. The symptoms of Raynaud's disease in the upper extremities were relieved, but the attacks of irresistible sleep and of cataplexy to which the patient had been subject for four years before operation were unaffected. The remaining four of these six patients do not require comment.

Marked improvement has been obtained in five cases in which treatment has been given since publication of our second report; in four, this has continued for periods of five months, three months, one month and two weeks, respectively. One of these four patients sleeps occasionally but was completely relieved of cataplexy during a period of three months. The patient who has continued to have relief for a period of one month, another of the four, has never had cataplexy. There is nothing of especial interest in the other two of these four cases. One patient, of the five who were markedly improved, treated recently, has also been relieved of hypnagogic hallucinations. The fifth patient of these five did not present anything of especial interest.

Moderate relief was obtained in two instances. Temporary relief was obtained in one instance (ephedrine seemed to lose its therapeutic effect after the first few weeks of its administration). By "temporary relief" we mean that we have evidence that there was improvement for a time and that this improvement came to an end; it is possible, of course, that in some of the other cases which we have observed for only a short time improvement may eventually prove to be only temporary.

Fifteen patients who had been given a diagnosis of narcolepsy in the clinic were treated at home under the supervision of their family physicians. Five of these patients appear to have been completely relieved. Four of the five patients continued to be relieved after one, two, three and four months, respectively. The remaining patient in this group of five who did not have cataplexy stopped treatment after a short period, owing to unpleasant symptoms attributable to the drug. Seven patients were markedly relieved over periods varying from two to four months. The nocturnal sleep of one of the patients of this group of seven had been disturbed; after the beginning of treatment, sleep became restful and natural. In another case of the seven the spells of weakness have been completely relieved and somnolence is lessened. There is nothing of particular interest in the remaining five cases of this group of seven. Twelve patients of this group of fifteen have been mentioned; three remain. One patient of these three seemed to have been moderately relieved of attacks of irresistible sleep and completely relieved of spontaneous cataplectic attacks. Desiccated thyroid gland was then added, with almost complete relief from symptoms. About two months later, this combined treatment apparently was failing to control the symptoms as well as before. In another instance of the three, the physician reported that treatment with ephedrine had been begun with "uncertain results." Another patient of the three, a boy aged 10 years, not subject to cataplectic seizures, in whose case a diagnosis of questionable encephalitis had been made, and who had been somewhat relieved by taking the leaf of stramonium, was reported to be worse while taking ephedrine and is classified in our data as a failure.

The results of treatment of seven additional cases of narcolepsy were made available to us through the courtesy of the attending physicians. In three instances, complete relief was obtained; in one instance, marked improvement, and in three instances, moderate improvement. One of the three patients of those who were moderately improved previously was unable to work at his occupation of traveling salesman; he was almost completely relieved at first. When he returned to work, his symptoms recurred to a considerable extent but subsequently became ameliorated. Another of the patients who was moderately improved continued to have attacks of sleep but was completely relieved of the spells of weakness. In addition, he slept better at night, was wider awake in the intervals between his attacks of sleep, and felt better generally. The condition of the third patient of these three does not require special comment.

Data on Cases Reported in the Literature by Other Authors.—The first patient ever treated by ephedrine was probably Janota's. It would seem that the patient was markedly improved. At the suggestion of Janota, Skala treated two patients with ephedrine, administering the drug hypodermically. The attacks of irresistible sleep appear to have been markedly diminished; the cataplectic seizures were unaffected in the first case and somewhat diminished in severity in the second; Grün[6] has recently reported the results of treatment with ephedrine in a typical case of narcolepsy. The patient, a man aged 60, was given 50 mg. of ephedrine sulphate thrice daily over a period of eight weeks. The patient appeared to derive some slight benefit during the first few days only. This case has been classified by us as a failure. Grün suggested that narcolepsy may be due to a variety of pathologic processes, some of which are uninfluenced by treatment with ephedrine.

COMMENT

As a rule the patients were given ephedrine sulphate in two doses of 25 mg. each, before breakfast and before the noonday meal. In certain instances this dosage sufficed. If it did not suffice, 25 mg. was given as a third dose at 4:30 p. m. The choice of this hour was made in order to avert disturbance of nocturnal sleep. In a considerable number of instances it was necessary to increase the morning, the noon and, in a few instances, even the afternoon dose to 50 mg. In but one instance was 75 mg. given thrice daily. It is to be noted that a few patients have been able to take as little as from 20 to 25 mg. once or twice daily, with almost complete relief from symptoms.

Numerous determinations of the blood pressure have been made. Aside from a slight rise from thirty to sixty minutes after administration, no effect on the systolic or the diastolic blood pressure was recorded. Two patients had essential hypertension; their pressures were not affected by the administration of ephedrine.

One patient who was completely relieved by ephedrine suffered a complete relapse while taking liquid petrolatum for the relief of constipation. When use of the oil was discontinued, he was again completely relieved. This appears to afford clinical corroboration of the fact mentioned by Chen and Schmidt[7] that ephedrine sulphate is not soluble in liquid petrolatum and it may explain certain cases in which the treatment has failed. This patient and another under observation by the same physician have been relieved for eight months.

SUMMARY

A survey was made of information obtained concerning sixty-seven patients who were given a diagnosis of narcolepsy in the clinic and who had not been treated with ephedrine. The duration of the disorder ranged from one to forty years. No patient had recovered completely. Thirty patients wrote that they had improved. In fourteen instances, however, the improvement was very slight. Twenty-five patients reported that they were the same, and eight that they were worse. Four patients had died.

Fifty patients have been treated with ephedrine, including those treated by others as well as those treated by us. To the best of our knowledge, the treatment was a total failure in two instances. Two patients, who at first were improved, no longer appear to receive any effect from the drug. Eight patients have been moderately improved symptomatically. Seventeen patients have made marked symptomatic improvement, and twenty have been completely relieved symptomatically. In the two groups mentioned in the preceding sentence, symptomatic relief continues as follows: in four patients after nine months, in two after eight months, in two patients after five months, in three patients after four months, in six after three months, and in four after two months.

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[6] Grün, Richard: Beitrag zur Kenntnis der Narkolepsie und der Frage der Dienstbeschädigung bei dieser Krankheit, Ztschr. f. d. ges. Neurol. u. Psychiat. **131**: 155-162 (June) 1931.

[7] Chen, K. K., and Schmidt, C. F.: Ephedrine and Related Substances, Medicine **9**: 1-117 (Feb.) 1930.

BISMUTH SUBNITRATE IN THE TREATMENT OF ARTERIOLAR (ESSENTIAL) HYPERTENSION *

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BOSTON

Excellent therapeutic results following the use of bismuth subnitrate in 200 patients with arteriolar (essential) hypertension were recently reported by Stieglitz.[1] In the present paper I report unsuccessful results with the drug after its long administration to a small though well studied group of patients with arteriolar hypertension.

THE RATIONALE FOR USING BISMUTH SUBNITRATE IN ARTERIOLAR HYPERTENSION

Stieglitz was prompted to use bismuth subnitrate in arteriolar hypertension after "observation of three cases of nitrate poisoning resulting from the liberal use of bismuth subnitrate in severe diarrheas,"[2] together with the observation that "hypotension may occur in normal individuals from excessive administration of bismuth subnitrate for diarrhea."[1]

It should, of course, be borne in mind that low blood pressure occurs in many cases of severe diarrhea, chiefly as a result of the great loss of fluid through the bowel with consequent reduction of blood volume.[3] The administration of bismuth subnitrate to these patients with diarrhea may therefore have been coincidental to, rather than the cause of, the hypotension. Even in the hypertensive patient, severe diarrhea may lower the blood pressure.[4]

Stieglitz[5] believes that the nitrate radical of bismuth subnitrate is changed into nitrites by bacteria in the intestine, that the nitrites are there absorbed into the blood stream, producing the hypotensive effect of the nitrites, and that finally some of the nitrites appear in the urine, giving slightly positive nitrite tests. The presence of slightly positive nitrite tests of the urine, however, does not lend great support to this conception, because positive nitrite tests of the urine, especially

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* From the Medical Department, Dr. Joseph H. Pratt, physician-in-chief, and from the Department of Clinical Research, Boston Dispensary.

[1] Stieglitz, E. J.: Bismuth Subnitrate in the Treatment of Arterial Hypertension, J. A. M. A. **95**: 842 (Sept. 20) 1930; Arterial Hypertension, New York, Paul B. Hoeber, Inc., 1930.

[2] Stieglitz, E. J.: Bismuth Subnitrate in the Therapy of Hypertension, J. Pharmacol. & Exper. Therap. **32**: 23 (Nov.) 1927.

[3] Friedlander, A.: Hypotension, J. Med. **9**: 13 (March) 1928.

[4] Ayman, David: The Early Diagnosis and Early Treatment of Essential Arteriolar Hypertension, New England J. Med. **205**: 424 (Aug. 27) 1931.

[5] Stieglitz, E. J.: The Pharmacodynamics and Value of Bismuth Subnitrate in *Hypertension*, J. *Pharmacol.* & Exper. Therap. **34**: 407 (Dec.) 1928.

During period F, while bismuth subnitrate was taken by the patient for six months, the blood pressure was not affected to the slightest degree demonstrable. On the other hand, during period C the blood pressure was lowered by the thiocyanates; during period D it was lowered by frequent visits; during period E it was lowered by frequent visits plus pink-colored water, and at all times it was lowered by sitting rest periods. A similar study of the other fourteen cases showed absolutely no demonstrable effect of the bismuth subnitrate on the blood pressure.

It must be borne in mind that although the accompanying chart or any similar chart apparently presents the blood pressure readings of a patient during three and a half years of observation, it in reality only shows the blood pressure readings taken during each of sixty-six visits to the clinic, a very small part of the three and a half years, for the straight lines connecting each visit must be arbitrary, merely showing apparent tendencies of the blood pressure level.

There was no effect on the symptoms other than what might be attributed to the pure suggestion supplied with any therapy. Seven of the patients were symptomless at the start of the study.

"UNTOWARD" SYMPTOMS DURING THERAPY

During the course of treatment, three of the fifteen patients manifested "untoward" symptoms which may have been purely coincidental to, rather than caused by, the administration of the drug. Stieglitz has reported no reactions in his studies. In case 5 of the present study the patient stated that on the seventy-seventh day of treatment severe pain in the left upper quadrant of the abdomen appeared, which lasted for one hour, during which time she was unable to urinate. This disappeared and did not recur despite continuation of the drug. In case 6, on the hundred and thirty-ninth day of treatment the patient complained of rising to urinate two or three times a night during the preceding week, of difficulty in urinating, of pain after urination and of the appearance of blood in the urine. There was no fever. A catheter specimen of urine contained 80 erythrocytes and 10 leukocytes to the high-power field, but no albumin or casts. Cystoscopic examination disclosed "diffuse congestion of the entire bladder mucosa." Pyelograms of the kidney did not reveal abnormality. The symptoms disappeared one week after the bismuth subnitrate was discontinued. In case 14 the patient complained of anorexia, constipation, marked restlessness and insomnia on the second day after taking the drug. He appeared very upset and felt certain that some mistake had been made in dispensing the drug. However, after he was given a new package of the drug, the same symptoms developed and he refused to take any more of it. In this case it was possible that the symptoms were of purely psychic origin, because previous distressing symptoms from treatment with thiocyanate may have caused him to fear any further therapy.

Only three patients (cases 3, 5 and 6) found that the bowels were slightly more constipated while they were taking the drug than before treatment.

SUMMARY OF RESULTS

Bismuth subnitrate given in doses of 2 Gm. (30 grains) daily for periods of from three to nine months had no demonstrable effect on the blood pressure of fifteen carefully studied and controlled patients with arteriolar (essential) hypertension.

484 Commonwealth Avenue.

LIPODYSTROPHY

A REPORT OF SIX CASES IN CHILDREN *

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OAK PARK, ILL.

Lipodystrophy is defined by Coates[1] as a "disease especially liable to affect children 5 to 8 years of age, in which characteristically there is a loss of subcutaneous fat of the face, neck, thorax, arms and abdomen, without assignable cause or gross symptoms of ill health. In association with this, there is in addition, in females, an increase of subcutaneous fat below the iliac crests."

Like many other diseases, it remained obscure until attention had been sufficiently attracted to it by case reports in the medical periodicals. Thus in 1917, J. Parkes Weber[2] summarized twenty-seven cases including his own reported to that date, while in 1924, Reuben, Zamkin and Fox[3] found sixty cases recorded and Coates in 1925 summarizes sixty-three cases. In 1927, eight case reports were found and there have been at least five cases reported in children under 14 years since 1927. Barraquer reported the first authentic case in 1906. Campbell described a case in 1907. However, Osler had records of a case seen by him in 1895, and permitted Weber[4] to report it along with his own cases in 1917. In 1911, Arthur Simons reported a case he had studied carefully and gave the name lipodystrophia progressiva to the disease. The first case reported in this country was by Herrmann[5] in 1916.

The outstanding features are the thin, almost cadaverous looking face and upper part of the trunk, while the lower part of the trunk and the legs look either normally or better than normally well nourished. Also, there is no loss of muscular power nor disturbance of sensation over the parts affected, and the individual is active and strong and well in every other respect. Although the face often appears pale, no anemia can be demonstrated. The onset is usually in young childhood. Thirty-nine of the sixty-three cases recorded by Coates had their onset before or in the eighth year, the youngest patient being two years of age. Forty-six patients were 10 years of age or younger. The age was not recorded in eight cases, so it is fair to assume that at least 82 per cent were 10 years of age or younger when symptoms began, and the great majority of these were between 6 and 8 years.

In this series also there were forty-two females and twenty-one males, or a preponderance among females of 2 to 1. It was at first thought to be a disease peculiar to females, but in 1916 Gertsmann[6] and again in the same year Gerhartz[7] reported each a case in a male. Since then, numerous cases have been reported and the preponderance of female cases is getting steadily less.

Four of the cases reported below came to the pediatric ward of the Presbyterian Hospital on the service of Dr. C. G. Grulee, and I am indebted to him for the privilege of studying and reporting these cases.

REPORT OF CASES

CASE 1.—*History.*—M. O., a girl, aged 10 years, first consulted me, Oct. 16, 1925. Her complaint was that her face was thin and pale. The parents first noticed that she was getting thin in the face and neck a few months after the removal of her tonsils four years before; i. e., when the child was 6 years old. This condition had become gradually more marked until within the last year it seemed to have become stationary. There was no other complaint; her appetite was good, she played normally and vigorously and did not tire easily, and she slept well, did well in school, and in every way acted like a healthy normal child. She had gained 7 pounds (3.2 Kg.) during the past year.

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* *Read before the Society of Internal Medicine of Chicago (except case 6), Feb. 28, 1928.*

[1] Coates, V.: Brit. J. Child. Dis. **22:** 194 (July-Sept.) 1925.

[2] Weber, F. P.: Brit. J. Child. Dis. **14:** 81-93 (April-June) 1917.

[3] Rueben, Zamkin and Fox: Lipodystrophie Progressiva, Arch. Pediat. **41:** 480, 1924.

[4] Weber, J. P.: Brit. J. Child. Dis. **14:** 179 (July-Sept.) 1917.

[5] Herrmann, Charles: Progressive Lipodystrophy, Arch. Int. Med. **17:** 516 (April) 1916.

[6] Gertsmann, J.: Wien. klin. Wchnschr. **39:** 1209 (Sept. 21) 1916.

[7] Gerhartz, H.: München. med. Wchnschr. **63:** 823, 1916.

She was the second child of healthy parents. The mother's pregnancy was normal, as was her labor. The child's birth weight was 8¼ pounds (4 Kg.). She was breast fed for eight months, did well through infancy and developed normally as to teething, walking, talking, and so on. She had whooping cough at the age of 3 years, chickenpox at 4 years, measles at 4 years, and mumps at 8 years. When she was about 3 years old, she had influenza and had frequent earaches but never a discharging ear; she had had no earache since the tonsillectomy at the age of 6 years. In the family history there was nothing of significance.

Examination.—When seen before removing her clothes, she gave the impression of a sick child; the face was very thin, the cheeks were sunken, there were wrinkles about the mouth and chin, the cheek bones were prominent, the eyes were sunken, and there was a peculiar pallor that was ghastly When the clothes were removed she was seen to have a well nourished and perfectly normal appearing body from the clavicles down. The abdomen, hips and legs were especially well covered with fat but not abnormally so. The thickness of the subcutaneous fat on the chest, arms and abdomen seemed normal but was entirely lacking on the neck, face and scalp. A thorough physical examination revealed nothing abnormal except as already described.

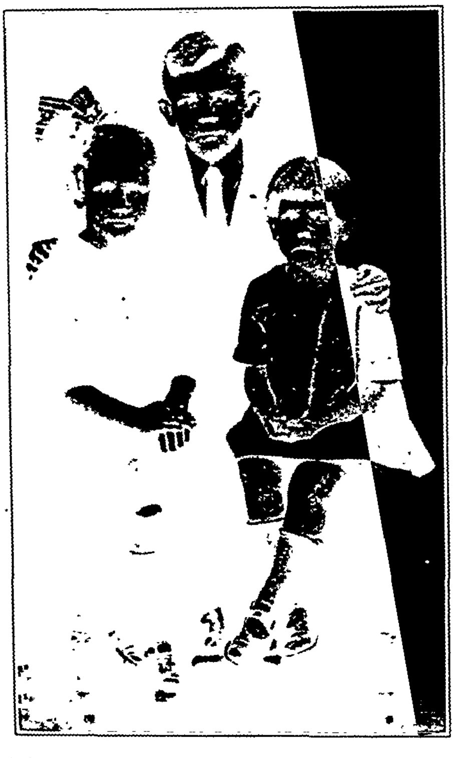

Fig. 1 (case 3).—Patient (the child on the left) at the age of 7.

At the Presbyterian Hospital, our investigations revealed the following data: Pirquet reaction, negative; blood Wassermann reaction, negative; urine, entirely normal; blood count showed: red blood cells, 4,500,000; white blood cells, 12,000; polymorphonuclear neutrophils, 67 per cent; eosinophils, 2; basophils, 1; small mononuclears, 23; large mononuclears, 4; no abnormal cells; hemoglobin, 85 per cent. Chemical analysis of the blood revealed: urea, 22; uric acid, 2.4; creatinine, 1.15; total nonprotein nitrogen, 24; blood sugar, 102; blood calcium, 10.8. The basal metabolic rate was —7. A roentgenogram of the skull showed a normal sella. Neurologic examination by Dr. Peter Bassoe revealed nothing pertaining to the nervous system and his comment was: "The striking feature is the deficiency of subcutaneous fat in the face and neck, while the muscles are strong."

Case 2.—*History.*—J. F., a girl, aged 7½ years, entered the Presbyterian Hospital, Feb. 26, 1926, in the service of Dr. Grulee, with the following complaint: thin face, nervousness, and failure to gain in weight. For the past three and one-half years, i. e., since the child was 4 years old, the mother had noticed that, in spite of a good appetite, plenty of good food and plenty of sleep, the child appeared to become gradually thinner and thinner. This condition the mother dated back to a severe attack of tonsillitis at the age of 4 years, since which time the patient had had repeated attacks of tonsillitis until nine months previously, when the tonsils were removed. She was very active, played vigorously and seemed well but tired rather easily. In school she received good grades.

She was the second child of healthy parents. She had one older sister and one younger sister, both living and well. The mother had had several miscarriages since the last child. The patient was born six weeks prematurely and weighed 4¼ pounds (2 Kg.). She was breast fed for four months and did well through infancy, developing normally in every way. Until she was 4 years old she appeared normal. She had whooping cough at 1½ years, chickenpox at 3 years and follicular tonsillitis at 4 years. The family history was without significance except that the mother's father died of tuberculosis, as did also a half sister.

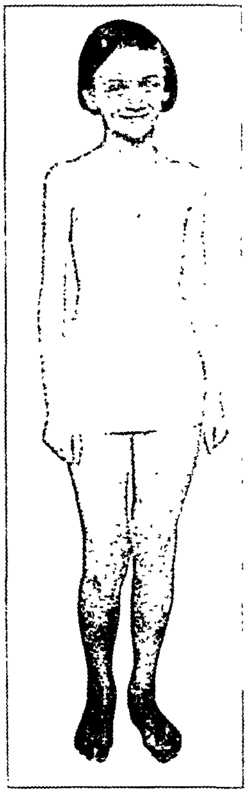

Fig. 2 (case 3).—Appearance at age of 10.

Examination.—The child did not appear ill but looked extremely thin in the face and upper part of the trunk, while the rest of her body was moderately well nourished. The contrast was striking. There were wrinkles about the mouth, and the cheeks were sunken. There seemed to be no subcutaneous fat in the face, neck, upper part of the chest and upper arms, but the abdomen and legs seemed to be normally padded. Thorough physical examination did not reveal anything abnormal except a systolic murmur heard best over the heart apex. A roentgenogram of the chest showed enlargement of the tracheobronchial lymph glands. There were no neurologic observations, and muscle power seemed everywhere to be normal. The temperature ranged between 98 and 99.4 during the four days she was in the hospital, and the pulse rate was from 80 to 100. The Pirquet reaction was positive; the Wassermann reaction of the blood was negative; the urine was entirely normal. The blood count gave the following results: red blood cells, 5,580,000; white blood cells, 10,300; polymorphonuclear neutrophils, 40 per cent; eosinophils, 3; small mononuclears, 20; large mononuclears, 37. No abnormal cells were seen. The hemoglobin was 99 per cent. Chemical analysis of the blood showed: urea nitrogen, 17.7; uric acid, 3.08; creatinine, 1.32; total nonprotein nitrogen, 37.2; blood sugar, 93; blood chlorides, 495. The basal metabolic rate was —12.

Case 3.—*History.*—J. P., a girl, aged 10 years, entered the Presbyterian Hospital, March 4, 1926, in the service of Dr. Grulee. The only complaint was thinness of the face and chest. For the past two and one-half years the mother had noticed that the child was getting thin, especially in the face. This was first noticed shortly after a tonsillectomy. In spite of a good appetite and gradual gain in weight, the thinness of the face gradually became more marked. The patient had always seemed to feel well, played actively, slept well and got along well with other children, except that lately they had been poking fun at her on account of her thin face, which looked so old and haggard. She was bright and did good work in school.

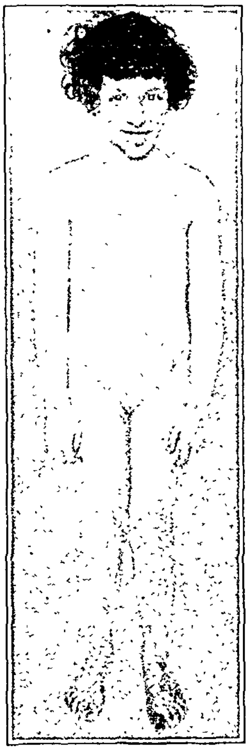

Fig. 3 (case 4).—Patient at age of 8.

She was the second child of healthy parents, born normally, at full term; her birth weight was 8½ pounds (3.8 Kg.). She was breast fed until 1 year old, and developed normally in every way. There were two other children, one aged 12 years and one 8 years, both in good health. At 2½ years she had an attack of bronchitis, at 3 years chickenpox, at 4 years measles and mumps, and at 7 years tonsillitis. In the family history there was nothing of significance.

Examination.—There was apparent absence of subcutaneous fat in the face, while the markings and actions of all the muscles were present. The arms and trunk had an emaciated appearance, while the muscles were well preserved. The abdominal wall was about normal in appearance and there seemed to be a fair amount of subcutaneous fat in the gluteal region and the lower extremities. There was perhaps a slight excess of fat in the upper part of the thighs. The muscle power seemed to be everywhere normal and the reflexes were all normal. Careful examination did not reveal anything unusual or abnormal further than already described. The Pirquet reaction was positive; the blood Wassermann reaction was negative; the urine was entirely normal. The blood count showed: red blood cells, 5,630,000; white blood cells, 20,200; polymorphonuclear neutrophils, 77 per cent; basophils, 1; small mononuclears, 11; large mononuclears, 21. No abnormal cells were noted. The hemoglobin was 99 per cent. Chemical analysis of the blood revealed urea nitrogen, 18.74; uric acid, 3.55; creatinine, 1.32; total nonprotein nitrogen, 37.72; blood calcium, 10.42. The basal metabolic rate was —7. A roentgenogram showed a normal sella.

Case 4.—*History.*—R. K., a girl, aged 8 years, entered the Presbyterian Hospital, in the service of Dr. Grulee, April 25, 1927. The only complaint was that she was thin in the face. Until two years ago, the mother stated, she was normal in appearance, but since then her face had been getting gradually thinner and more wrinkled; now the neck and upper part of the chest was also becoming thin. Her appetite was fair and she felt well and was active. There had been no loss of weight.

She was the ninth child, and she had been born at full term, after prolonged but spontaneous delivery. The birth weight is not known. She was breast fed for one year. She developed normally. At 1 year she had smallpox and at 5½ years measles; she has had frequent colds and has had a chronic suppurative otitis media for two years. Tonsillectomy was performed at 7 years. The father died at the age of 40 of influenza. The mother, aged 49, was living and well. Six other children were living and well. Two died of pneumonia following measles.

Examination.—The appearance was striking, for the face and neck and upper portion of the chest were very thin, and the remainder of the body seemed well nourished. The cheeks were sunken and the cheek bones prominent. When she smiled there were wrinkles about the mouth and on the chin. Added to this the face was badly scarred as the result of smallpox. The muscles of the face and neck and chest stood out plainly and seemed normally strong. The lower part of the trunk and the legs seemed well padded with fat. The deep and superficial reflexes were all normal, and there was no disturbance of cutaneous sensations. Further examination showed purulent discharge from the right ear and slight cervical adenopathy. The spleen was palpable. There were no other observations of significance.

A roentgenogram of the chest showed enlarged tracheobronchial glands. The Pirquet reaction was very strongly positive; the blood Wassermann reaction was negative; the urine was entirely normal. The blood count showed: red blood cells, 5,040,000; white blood cells, 8,200; neutrophils, 68 per cent; small mononuclears, 24; large mononuclears, 8. No abnormal cells were noted. The hemoglobin was 88 per cent. Chemical analysis of the blood gave the following results: urea nitrogen, 10.9; uric acid, 4.1; creatinine, 1.3; total nonprotein nitrogen, 31.4; cholesterol, 159.2. The basal metabolic rate was —5. The blood calcium was 10.21; the blood sugar, 86.9; carbon dioxide, 52.2 per cent by volume.

Case 5.—*History.*—W. Van H., a girl, aged 9¾ years, entered the Presbyterian Hospital, Nov. 16, 1927, in the service of Dr. Grulee. She had been visiting the Central Free Dispensary because of some abdominal pain, and the mother said that she was gaining in weight slowly and was worried about her face looking so very thin. The only other complaint was that she seemed to tire easily. In every other way she seemed to be normal, had a good appetite, played vigorously, slept well, and got on well in school.

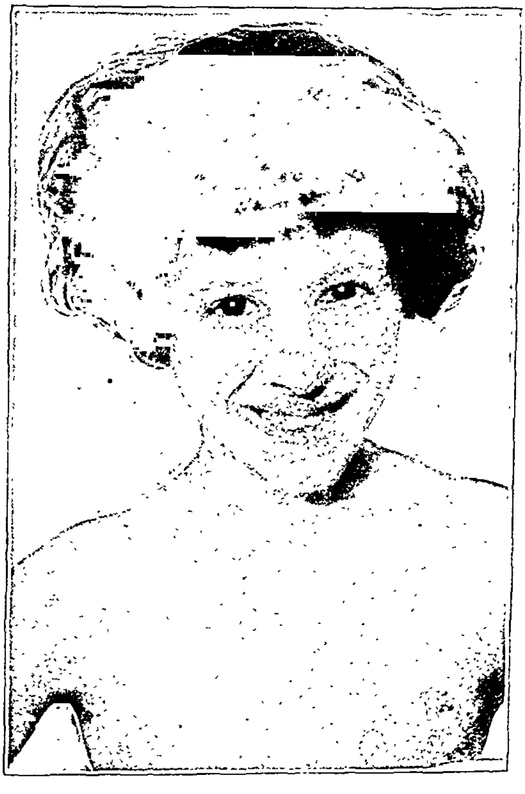

Fig. 4 (case 4).—Appearance at age of 8. Note the wrinkles about the mouth.

For the past two years her face had been getting gradually thinner and thinner. The mother and father were well and had four other children, all of whom were well. One child had died at the age of 4 days from a congenital atresia of the esophagus and a congenital heart defect. The mother was well while carrying the present patient and had a normal labor, and the infant was normal at birth. She was breast fed for three months, did well during infancy and developed normally in every way. At 9 months she had scarlet fever and at 7 years measles and whooping cough. Her tonsils were removed at 8 years. She had had some head colds but no other acute illnesses. In the family history there was nothing significant.

Examination.—The striking feature was the very thin face in contrast to the fairly plump and well nourished trunk and lower extremities. The face looked sallow and wrinkled and old; the cheeks were sunken, there were wrinkles about the mouth and eyes, which showed up strikingly when she smiled. Only a little subcutaneous fat could be felt on the face and neck and only a little more over the upper part of the chest and arms, but from the costal margins down there seemed to be a normal amount of it. The muscles of the face were normal in power; the jaw reflex was present and normal. The same was true of the muscles of the arms and thorax. The deep and superficial reflexes elsewhere were normal. The thyroid gland was but slightly enlarged. Further careful examination did not reveal any abnormalities or signs of disease.

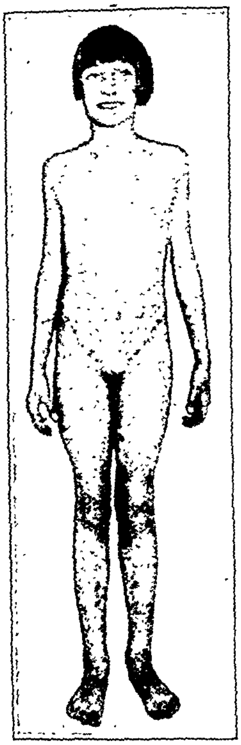

Fig. 5 (case 5).—Patient at the age of 9¾ years.

The Pirquet and the blood Wassermann reactions were both negative. The blood count gave the following results: red blood cells, 4,800,000; white blood cells, 10,900; neutrophils, 60 per cent; small mononuclears, 38; large mononuclears, 2. No abnormal cells were noted. The hemoglobin was 80 per cent. The urine was entirely normal. Chemical analysis of the blood revealed urea nitrogen, 10.7; uric acid, 3.8; creatinine, 1.4; total nonprotein nitrogen, 30.2; blood phosphorus, 4.06; blood calcium, 10.7; blood cholesterol, 142.2; blood sugar, 90.9; blood chlorides, 480; carbon dioxide, 56 per cent by volume. A roentgenogram of the long bones did not show any evidence of disturbance of bone growth. The basal metabolic rate was —19.

Case 6.—*History.*—R. S., a girl, aged 10½ years, was brought to me, May 3, 1928, with the complaint that for the last four years she had been thin and that in spite of a good appetite she was becoming thinner. There were no other complaints, except that she had vague pains in the stomach at times.

She was the second child of healthy parents. The mother's pregnancy was normal, as was her labor. The infant seemed normal at birth and weighed 8 pounds (3.6 Kg.). She was normal through infancy, developing normally and having no illness. At 3 years she had a very severe attack of pharyngeal diphtheria, and the mother thought that she had never seemed quite as sturdy since then. Her tonsils and adenoids were removed when she was 4; at 5 she had measles and whooping cough.

Examination.—The face was thin and sallow, with wrinkles about the mouth. There seemed to be a complete absence of subcutaneous fat in the face, neck, upper part of the thorax to just below the clavicles, and to about the middle of the upper arms. The remainder of the body seemed to be quite normally padded with fat. There was no disturbance of muscular power; the reflexes were all normal, and there was no disturbance of the sensory nerves. All other physical conditions were entirely normal. Her weight was 66¾ pounds (30.2 Kg.) and her height 53½ inches (136 cm.).

Laboratory observations at the Presbyterian Hospital were as follows: blood: hemoglobin, 75 per cent; red blood cells, 4,570,000; white blood cells, 7,500; differential count: neutrophils, 53 per cent; small mononuclears, 39; large mononuclears, 3; eosinophils, 5. Urinalysis was negative. The stools were normal. The basal metabolic rate was —12 (Du Bois). The Pirquet and the Wassermann reactions were negative.

Absolutely no clue to the etiology of this strange disease is as yet at hand, though many writers have indulged in interesting speculations. Some, as would be expected, strongly favor some endocrine disturbance. Feer, for instance, inclines toward a thyroid dysfunction as the most plausible cause. To others [8] the distribution of the fat atrophy stands in the way of accepting the endocrine theory. Simons refers to it as "a sister of the muscular dystrophies" and considers it most likely a trophoneurosis. Weber suggests a disturbance of the vegetative nervous system with redistribution of fat in the subcutaneous tissues analogous to that of pigment in the skin in vitiligo.

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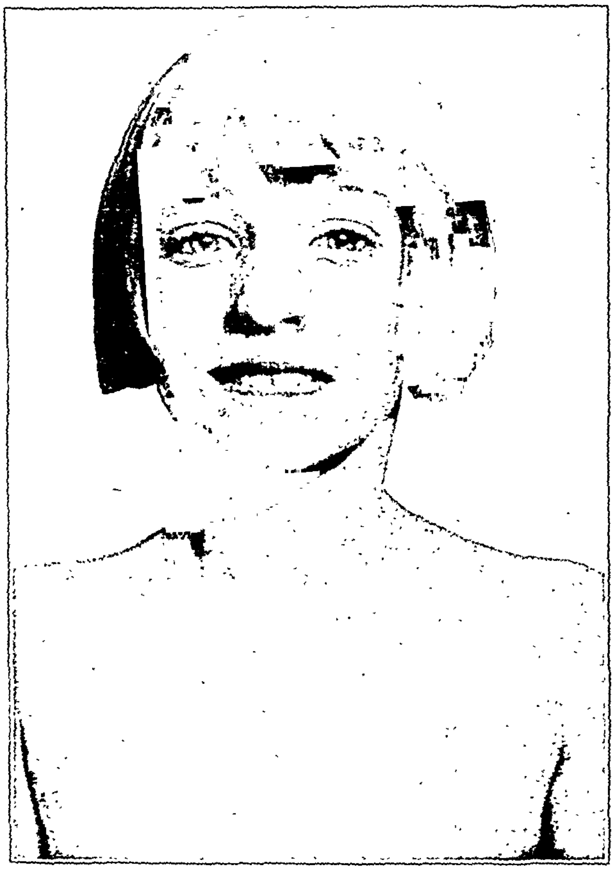

Fig. 6 (case 5).—Patient at age of 9¾ years.

A center controlling fat distribution is assumed to exist in the subthalamic portion of the midbrain, which is intimately connected with the pineal gland through sympathetic nerve fibers. A localization of control for chest. For the past two and one-half years the mother had noticed that the child was getting thin, especially in the face. This was first noticed shortly after a tonsillectomy. In spite of a good appetite and gradual gain in weight, the thinness of the face gradually became more marked. The patient had always seemed to feel well, played actively, slept well and got along well with other children, except that lately they had been poking fun at her on account of her thin face, which looked so old and haggard. She was bright and did good work in school.

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[8] Klien, H.: München. med. Wchnschr. 68: 206-208 (Feb. 18) 1921.

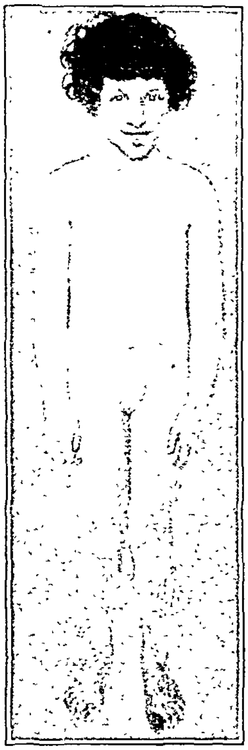

Fig. 3 (case 4).—Patient at age of 8.

She was the second child of healthy parents, born normally, at full term; her birth weight was 8½ pounds (3.8 Kg.). She was breast fed until 1 year old, and developed normally in every way. There were two other children, one aged 12 years and one 8 years, both in good health. At 2½ years she had an attack of bronchitis, at 3 years chickenpox, at 4 years measles and mumps, and at 7 years tonsillitis. In the family history there was nothing of significance.

Examination.—There was apparent absence of subcutaneous fat in the face, while the markings and actions of all the muscles were present. The arms and trunk had an emaciated appearance, while the muscles were well preserved. The abdominal wall was about normal in appearance and there seemed to be a fair amount of subcutaneous fat in the gluteal region and the lower extremities. There was perhaps a slight excess of fat in the upper part of the thighs. The muscle power seemed to be everywhere normal and the reflexes were all normal. Careful examination did not reveal anything unusual or abnormal further than already described. The Pirquet reaction was positive; the blood Wassermann reaction was negative; the urine was entirely normal. The blood count showed: red blood cells, 5,630,000; white blood cells, 20,200; polymorphonuclear neutrophils, 77 per cent; basophils, 1; small mononuclears, 11; large mononuclears, 21. No abnormal cells were noted. The hemoglobin was 99 per cent. Chemical analysis of the blood revealed urea nitrogen, 18.74; uric acid, 3.55; creatinine, 1.32; total nonprotein nitrogen, 37.72; blood calcium, 10.42. The basal metabolic rate was —7. A roentgenogram showed a normal sella.

Case 4.—*History.*—R. K., a girl, aged 8 years, entered the Presbyterian Hospital, in the service of Dr. Grulee, April 25, 1927. The only complaint was that she was thin in the face. Until two years ago, the mother stated, she was normal in appearance, but since then her face had been getting gradually thinner and more wrinkled; now the neck and upper part of the chest was also becoming thin. Her appetite was fair and she felt well and was active. There had been no loss of weight.

She was the ninth child, and she had been born at full term, after prolonged but spontaneous delivery. The birth weight is not known. She was breast fed for one year. She developed normally. At 1 year she had smallpox and at 5½ years measles; she has had frequent colds and has had a chronic suppurative otitis media for two years. Tonsillectomy was performed at 7 years. The father died at the age of 40 of influenza. The mother, aged 49, was living and well. Six other children were living and well. Two died of pneumonia following measles.

Examination.—The appearance was striking, for the face and neck and upper portion of the chest were very thin, and the remainder of the body seemed well nourished. The cheeks were sunken and the cheek bones prominent. When she smiled there were wrinkles about the mouth and on the chin. Added to this the face was badly scarred as the result of smallpox. The muscles of the face and neck and chest stood out plainly and seemed normally strong. The lower part of the trunk and the legs seemed well padded with fat. The deep and superficial reflexes were all normal, and there was no disturbance of cutaneous sensations. Further examination showed purulent discharge from the right ear and slight cervical adenopathy. The spleen was palpable. There were no other observations of significance.

A roentgenogram of the chest showed enlarged tracheobronchial glands. The Pirquet reaction was very strongly positive; the blood Wassermann reaction was negative; the urine was entirely normal. The blood count showed: red blood cells, 5,040,000; white blood cells, 8,200; neutrophils, 68 per cent; small mononuclears, 24; large mononuclears, 8. No abnormal cells were noted. The hemoglobin was 88 per cent. Chemical analysis of the blood gave the following results: urea nitrogen, 10.9; uric acid, 4.1; creatinine, 1.3; total nonprotein nitrogen, 31.4; cholesterol, 159.2. The basal metabolic rate was —5. The blood calcium was 10.21; the blood sugar, 86.9; carbon dioxide, 52.2 per cent by volume.

Case 5.—*History.*—W. Van H., a girl, aged 9¾ years, entered the Presbyterian Hospital, Nov. 16, 1927, in the service of Dr. Grulee. She had been visiting the Central Free Dispensary because of some abdominal pain, and the mother said that she was gaining in weight slowly and was worried about her face looking so very thin. The only other complaint was that she seemed to tire easily. In every other way she seemed to be normal, had a good appetite, played vigorously, slept well, and got on well in school.

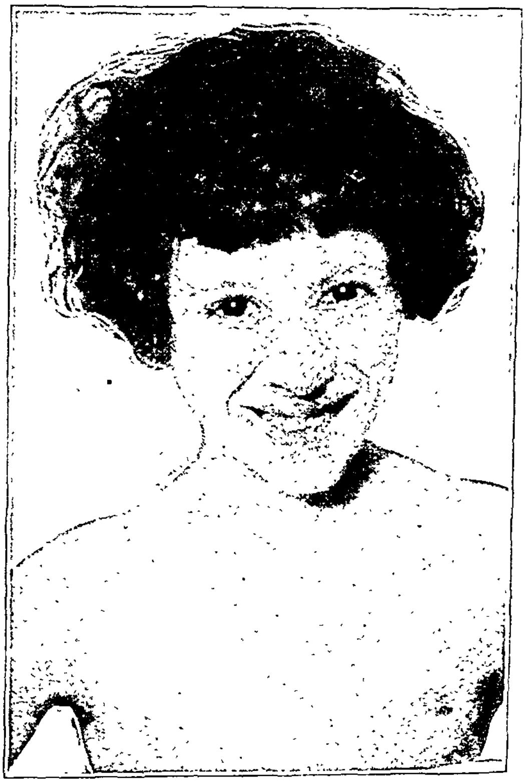

Fig. 4 (case 4).—Appearance at age of 8. Note the wrinkles about the mouth.

For the past two years her face had been getting gradually thinner and thinner. The mother and father were well and had four other children, all of whom were well. One child had died at the age of 4 days from a congenital atresia of the esophagus and a congenital heart defect. The mother was well while carrying the present patient and had a normal labor, and the infant was normal at birth. She was breast fed for three months, did well during infancy and developed normally in every way. At 9 months she had scarlet fever and at 7 years measles and whooping cough. Her tonsils were removed at 8 years. She had had some head colds but no other acute illnesses. In the family history there was nothing significant.

Examination.—The striking feature was the very thin face in contrast to the fairly plump and well nourished trunk and lower extremities. The face looked sallow and wrinkled and old; the cheeks were sunken, there were wrinkles about the mouth and eyes, which showed up strikingly when she smiled. Only a little subcutaneous fat could be felt on the face and neck and only a little more over the upper part of the chest and arms, but from the costal margins down there seemed to be a normal amount of it. The muscles of the face were normal in power; the jaw reflex was present and normal. The same was true of the muscles of the arms and thorax. The deep and superficial reflexes elsewhere were normal. The thyroid gland was but slightly enlarged. Further careful examination did not reveal any abnormalities or signs of disease.

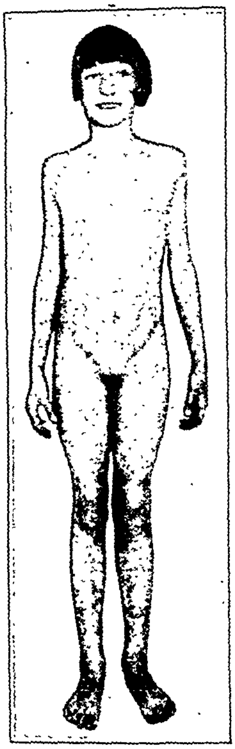

Fig. 5 (case 5).—Patient at the age of 9¾ years.

The Pirquet and the blood Wassermann reactions were both negative. The blood count gave the following results: red blood cells, 4,800,000; white blood cells, 10,900; neutrophils, 60 per cent; small mononuclears, 38; large mononuclears, 2. No abnormal cells were noted. The hemoglobin was 80 per cent. The urine was entirely normal. Chemical analysis of the blood revealed urea nitrogen, 10.7; uric acid, 3.8; creatinine, 1.4; total nonprotein nitrogen, 30.2; blood phosphorus, 4.06; blood calcium, 10.7; blood cholesterol, 142.2; blood sugar, 90.9; blood chlorides, 480; carbon dioxide, 56 per cent by volume. A roentgenogram of the long bones did not show any evidence of disturbance of bone growth. The basal metabolic rate was —19.

CASE 6.—*History.*—R. S., a girl, aged 10½ years, was brought to me, May 3, 1928, with the complaint that for the last four years she had been thin and that in spite of a good appetite she was becoming thinner. There were no other complaints, except that she had vague pains in the stomach at times.

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Absolutely no clue to the etiology of this strange disease is as yet at hand, though many writers have indulged in interesting speculations. Some, as would be expected, strongly favor some endocrine disturbance. Feer, for instance, inclines toward a thyroid dysfunction as the most plausible cause. To others [8] the distribution of the fat atrophy stands in the way of accepting the endocrine theory. Simons refers to it as "a sister of the muscular dystrophies" and considers it most likely a trophoneurosis. Weber suggests a disturbance of the vegetative nervous system with redistribution of fat in the subcutaneous tissues analogous to that of pigment in the skin in vitiligo.

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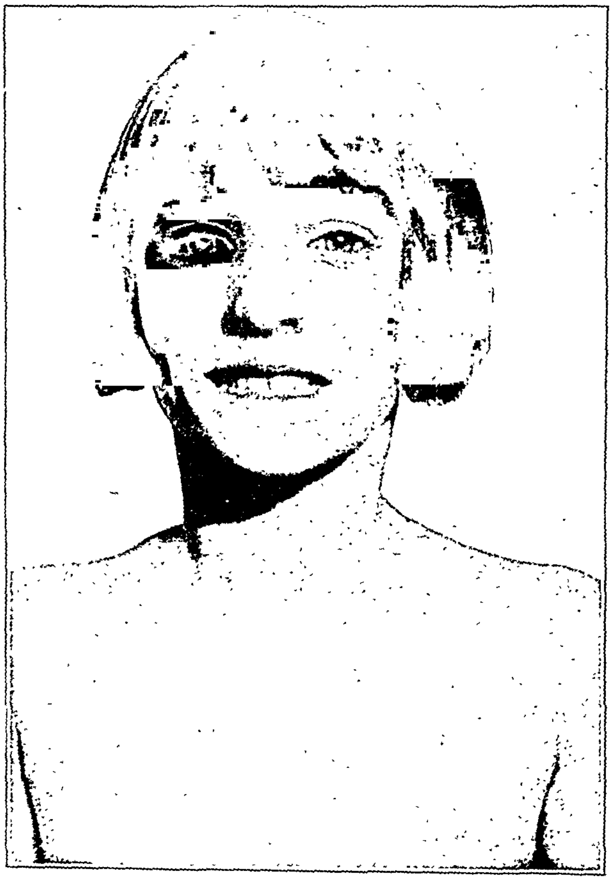

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[8] Klien, H.: München. med. Wchnschr. 68: 206-208 (Feb. 18) 1921.

definite segments of the body, either in the center or in the pineal gland would explain the segmental distribution of fat atrophy or hypertrophy, depending on the location of changes in these structures. In lipodystrophia, the disease starts most frequently at about the sixth year or shortly thereafter. It is also true that processes of involution begin in the pineal gland at about the sixth year; much of the gland substance disappears, and cysts, glia plaques, and the like develop. One might assume that, if a certain part is especially affected, it in turn would so influence a certain part of the center as to cause fat atrophy in only the upper part of the body. It has also seemed to others that the distribution of the fat atrophy must be explained on a neurologic basis. Wolff and Ehrenclou[9] report a case of facial hemiatrophy and hemiatrophy of the tongue together with lipodystrophia, a perversion of sensation and a peculiar affective state. They conclude that the facial hemiatrophy is merely the outstanding feature of a syndrome of general autonomic imbalance resulting from deranged central trophic control. They call attention to such derangements following encephalitis giving rise to obesity, alterations in respiratory rhythm, diabetes insipidus, and so on. These conditions point toward the midbrain and that part of it known to be often profoundly affected by encephalitis; i. e., the thalamic and subthalamic area. The possibility has been suggested[10] of an "encephalitis" infection or toxin involving this area directly or indirectly through the effects of disease on the vasomotor apparatus.

I have gone into this speculation as to etiology more in detail because in the six cases here reported the onset seemed definitely to have followed some trauma to or infection of the nasopharynx, and in the reported cases there are thirteen in which the onset dated from such conditions as measles, pertussis, influenza, pneumonia, tonsillitis, tonsillectomy, and otitis media. In my cases, two followed tonsillectomy, one tonsillitis, one measles, one measles and pertussis, and one diphtheria, measles, pertussis and tonsillectomy. The close relationship of infections of the upper respiratory tract to encephalitis with its favorite localization in the midbrain suggests strongly the possibility, at least that there may be some etiologic connection in this disease.

The question of etiology is handicapped by the fact that these patients do not die of this disease and to date records of only two autopsies are at hand: Husler's[11] case and one reported by Weber and Gunewardene.[12] In neither of these was there any definite clue to the cause of the disease. Biopsy reports by several authors show a complete absence of subcutaneous fat, with only a few fat globules in the sebaceous glands.

SUMMARY

Six cases of lipodystrophy in children are reported. In all, the loss of subcutaneous fat was first noticed soon after a definite and severe infection of the upper respiratory tract or tonsillectomy.

None showed any laboratory or clinical evidence of disturbance of the endocrine glands.

Emphasis is laid on the possibility that toxic or infectious derangement of central trophic centers in the thalamic and subthalamic areas of the midbrain may be the main etiologic factor.

715 Lake Street.

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[9] Wolff, H. G., and Ehrenclou, A. H.: Trophic Disorders of Central Origin, J. A. M. A. **88:** 991-994 (March 26) 1927.

[10] Von Wartenberg, R.: Arch. f. Psychiat. **74:** 663, 1925.

[11] Husler, J.: Ztschr. f. Kinderh. **10:** 116, 1914.

[12] Weber, F. P., and Gunewardene, T. H.: Brit. J. Child. Dis. **16:** 89 (April-June); 200 (Oct.-Dec.) 1919.

Clinical Notes, Suggestions and New Instruments

SERUM TREATMENT OF TULAREMIA *

Lee Foshay, M.D., Cincinnati

Ten cases of acute tularemia have been treated with a specific antiserum prepared from a goat inoculated with formaldehyde-killed suspensions of Pasteurella tularensis. The therapeutic responses have been sufficiently definitive to justify a preliminary report.

Usually about 10 cc. of serum has been given intravenously to each patient on both the first and the second day in the hospital. No serum reactions have occurred. In nine cases there has occurred an abrupt cessation of fever, malaise, chills, sweats, arthralgias and myalgias forty-eight hours after the second injection, and also a rapid reduction in the volume of the involved lymph glands to an average of one half of their former diameters. Not a single lymph gland has suppurated. The skin rash, when present, has likewise either disappeared or faded extensively within the first three days. One patient, received in a dying condition, was not benefited.

A detailed report of these and possibly of other cases will be rendered after the present rabbit season has passed. For the present, the antiserum, if used early, gives promise of being a potent, reliable and satisfactory therapeutic measure for tularemia.

126 Wellington Place.

PRIMARY ABSCESS OF THE EPIGLOTTIS

J. Allan Weiss, M.D., Chicago

The cartilages of the larynx are subject to a variety of diseases and traumatic influences of endogenous and exogenous origin. Infection may extend to the larynx from adjacent inflammatory processes in the lingual or faucial tonsils, the pharynx, the nasal sinuses or the deep tissues of the neck through the blood vessels, the lymphatics or by direct continuity. Ballin[1] and S. Cohen[2] have commented on the rarity of abscess of the larynx, considering the universal occurrence of infections of the upper respiratory tract which frequently terminate in localized abscesses in the tonsillar, peritonsillar or retropharyngeal regions. Suppuration of the larynx also occurs as a secondary infection superimposed on syphilitic, malignant or tuberculous infiltration; following necrosis of cartilage due to excessive radium or roentgen therapy or to pressure of tracheotomy or intubation tubes; after perichondritis complicating typhoid, influenza, pneumonia, diphtheria or the exanthems; as a metastatic lesion in ulcerative endocarditis or pyemia, or as a sequel to stab-wounds or fractures.

Primary abscess of the epiglottis, however, has been infrequently reported. Semon[3] found the epiglottis involved in ten of a series of fourteen cases of acute suppuration of the larynx observed in a period of twenty years. In two of these cases the infection was limited to that cartilage but in only one was the process primary. In a group of twenty cases of epiglottic inflammation reported in the English literature, eight were deemed to originate there.[4] Abscess of the epiglottis may be considered primary when it occurs in the absence of preceding underlying disease of that structure or of demonstrable infection elsewhere.

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* From the Christ Hospital Institute for Medical Research.

[1] Ballin, M. J.: Laryngeal Abscess, New York M. J. **104:** 781 (Oct. 21) 1916.

[2] Cohen, S.: Idiopathic Abscess of the Larynx, Laryngoscope **35:** 311 (April) 1925.

[3] Semon, F.: Medico-Chirurgical Transactions, London **78:** 181, 1895.

[4] Key, S. N.: Angina Epiglottidea Anterior, J. A. M. A. **67:** 116 (July 8) 1916. Scal, J. C.: Report of Three Cases of Abscess of the Larynx, M. J. & Rec. **123:** 182 (Feb. 3) 1926. Thiesen, C. F.: Angina Epiglottidea Anterior, Albany M. Ann. **21:** 395, 1900. Friedman and Greenfield: Acute Phlegmonous Epiglottitis, New York M. J. **115:** 137 (Feb. 1) 1922. Lederman, M. D.: Acute Phlegmonous Epiglottitis, Laryngoscope **24:** 25, 1914. Seitz, R. P.: Acute Streptococcic Laryngitis in Children, California & West. Med. **30:** 259 (April) 1929. Daily, Brown, P.: Abscess of Larynx, M. Rec. **44:** 199 (Aug. 12) 1893. Daily, Louis; and Allen, N. A.: Acute Infection of Epiglottis and Larynx, Laryngoscope **36:** 367 (May) 1926. Gilmore, G. B.: Abscess of Epiglottis, New York State J. Med. **30:** 448 (April 15) 1930. Hyde, C. I., and Richman, J.: Acute Infectious Edematous Laryngitis, Arch. Pediat. **48:** 124 (Feb.) 1931. Shambaugh, G. E.: Acute Perichondritis of the Epiglottis, S. Clin. Chicago **4:** 1191 (Dec.) 1920. Howard, R. E.: Laryngeal Abscess, Laryngoscope **41:** 344 (May) 1931.

The following case is illustrative:

REPORT OF CASE

L. R., a man, aged 42, an executive, seen, September 16, complained of malaise and mild soreness on swallowing. His temperature was 99.4 F. On examination no acute disease could be found in the ears or nose. The tonsils were small and not injected. There were no palpable cervical glands. The pharynx showed a low-grade chronic injection consistent with the patient's habit of excessive smoking. With a laryngeal mirror no acute inflammation was evident in the lingual tonsil, arytenoids or vocal cords. The epiglottis, however, presented a reddened, hyperemic and glistening lingual surface.

The usual treatment for acute laryngitis was instituted. The following day there was seen some increase in the swelling and the patient complained of a feeling of a "lump in the throat" and frequent hawking, productive of small amounts of mucus. The temperature was 100.2 F. The epiglottis was swabbed with equal parts of 1 : 1,000 epinephrine chloride and 10 per cent zinc sulphocarbolate solutions. September 18, two days after the onset of symptoms, after an uncomfortable night due to marked soreness and fulness of the throat, increased dysphagia and coughing, the patient was removed to the hospital.

At this time there was an increased frequency of respiration with slight difficulty on inspiration, which was noisy but not stridorous. There was no cyanosis or retraction of the infrasternal or supraclavicular spaces. The voice was guttural but not hoarse. The general condition was excellent and there was no air-hunger, restlessness or exhaustion. The temperature was 100.6 F., and the leukocyte count was 18,800, with 72 per cent polymorphonuclear leukocytes. General examination was essentially negative. A laryngoscopic examination revealed the epiglottis as a spherical mass about three times normal size, overhanging and partially blocking the vestibule of the larynx. The swelling obscured the outline of the cartilage but was limited to the anterior surface, which was smooth, glistening, boggy to the touch with a probe, and bright red except for two pea-sized white areas of localized necrosis. The larynx was hidden from view except for part of the arytenoid cartilages, which were not swollen. When the epiglottis was drawn forward with a curved probe, a portion of the vocal cords could be seen to be normal in appearance and mobility.

Though the immediate indication was not urgent, it was considered advisable to relieve the mechanical obstruction by incisions to promote drainage. The epiglottis was anesthetized by topical application of a 10 per cent cocaine-epinephrine solution. Under indirect laryngoscopy, with the use of a curved guarded-blade larynx knife of the plunger type, punctures were made through the two softened areas, allowing escape of seropurulent fluid. The dyspnea improved rapidly and was gone by the next morning, when the swelling had decreased enough to permit a view of the posterior third of the vocal cords. The mucosa now was dry, glazed, lax and dull red, with pus exuding from the puncture openings.

Expectoration of droplets of pus continued for several days. Drainage was aided by probing the incisions daily, after removing small plugs of necrotic tissue. Soreness, dysphagia and muffled speech gradually disappeared. September 22, four days after operation, the epiglottis was normal in size and contour, but still slightly hyperemic. The temperature and white blood count were normal. Culture of pus from the knife blade showed a growth of Staphylococcus albus. The Wassermann reaction of the blood was negative.

COMMENT

The moderate elevation of temperature, the limitation of inflammation to the epiglottis, and the absence of local extension or systemic manifestations were evidence of the relatively mild nature of the infection in this case. This is compatible with the isolation of Staphylococcus albus as the causative organism.

Mild cases may respond to medical measures. In this instance, however, the swelling was sufficient to require multiple incisions to relieve mechanical embarrassment to respiration and to avoid a greater degree of dyspnea, which would follow extension to the arytenoid cartilages, aryepiglottic folds or false cords, directly encroaching on the glottis.

ANATOMIC DISCUSSION

Restriction of infiltration to the anterior aspect of the epiglottis is the usual finding in most cases. This is due to the looseness of the areolar connective tissue of the submucosa in this location. Hajek [5] has shown experimentally that fluid may extend to the glosso-epiglottic fossa at the base of the tongue but is confined to the lingual surface of the epiglottis by the firm attachment of the mucosa, anteriorly, to the free margin of the cartilage and, laterally, to the pharyngo-epiglottic folds. However, Logan-Turner [6] indicated that these connections constitute merely an anatomic barrier to edema or moderate infections. Severe infections may extend to other parts of the larynx or to the deep cervical tissues by continuity of the mucosa.

ETIOLOGY

The general factors predisposing to acute epiglottitis are similar to those of catarrhal laryngitis, including chilling by exposure to wet and cold, excessive use of alcohol or tobacco, debilitating influences as mental or physical strain, malnutrition, autointoxication and chronic organic diseases. Inhalation of irritating vapors or aspiration of very hot or corrosive liquids may result in devitalization of the protective mucosa. Also, the epiglottis may be directly traumatized by foreign bodies, bones or sharp food particles, which may cause an abrasion providing an atrium for the resident bacterial flora of the throat. Such an accident may be so slight as to be unnoticed by the patient or dismissed as insignificant at the time of occurrence. This is the presumable cause in the case reported.

However, direct trauma is probably not the major factor in primary involvement of the epiglottis. It is difficult to correlate the low incidence of lesions of this structure with its seeming vulnerability to injury due to its prominent position at the entrance of the larynx and its protective function as trap-door to the tracheopulmonary system.

The bacteriology is varied, though some type of streptococcus is the most frequent offender. In thirteen cases of epiglottic suppuration in which cultures were reported, Streptococcus hemolyticus was found in pure culture in six cases and in mixed infection in four cases. Other organisms found included Bacillus influenzae, B. coli, B. pyocyaneous, Micrococcus catarrhalis, Staphylococcus aureus and the pneumococcus. In twenty-eight cases of diffuse laryngotracheobronchitis, Bradford and Leahy [7] found Streptococcus viridans predominating.

SYMPTOMS

In severe cases, symptoms of hoarseness, dysphagia, wheezing and external tenderness occur. Increasing dyspnea with cyanosis, restlessness and retraction of the soft tissues of the chest on inspiration indicate extension to the interior of the larynx.

In fulminating infections, usually of streptococcic origin, high fever, chills and prostration supervene as evidence of pneumonia, or of pyemia, often with localizing signs of involvement of the heart, pleura, pericardium, peritoneum or joints. Direct extension to the deep tissues of the neck or to the mediastinum may occur.

TREATMENT

In addition to general "cold" management, in earlier stages the use of external and internal cold applications and also sprays of epinephrine, ephedrine or cocaine to the epiglottis are of value to shrink the swelling. Multiple incisions are often necessary to reduce engorgement or provide drainage.

In threatened asphyxia, prompt establishment of an airway is imperative. Although tracheotomy carries the hazard of subsequent pneumonia, it affords an easier and more positive method of maintaining breathing without the injury to inflamed tissues caused by intubation. Supportive measures to sustain the patient and specific treatment are necessary when complications arise.

SUMMARY

Primary abscess of the epiglottis is rare despite the universal occurrence of infections of the upper respiratory tract. A case is reported which required multiple incisions and drainage to relieve obstruction to breathing.

104 South Michigan Avenue.

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[5] Hajek, quoted by Friedman and Greenfield (footnote 4).

[6] Logan-Turner, A.: The Submucous Areolar Tissue of the Larynx, Edinburgh M. J. **11**: 417, 1902.

[7] Bradford, W. L., and Leahy, A. D.: Acute Obstructive Laryngitis, Am. J. Dis. Child. **40**: 298 (Aug.) 1930.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

W. A. Puckner, Secretary.

SODIUM IODOBISMUTHITE.—Sodium bismuth iodide.—A compound formed by the interaction of bismuth chloride and sodium iodide in ethyl acetate solution, consisting essentially of hydrated sodium iodobismuthite (sodium bismuth iodide) Na_2BiI_5, with inorganic salts. It contains approximately 21 per cent bismuth (Bi), 62 per cent iodide (I^-) and 11 per cent water of hydration.

Actions and Uses.—It is claimed for this new bismuth preparation, sodium iodobismuthite, that it has the quality of appearing in the spinal fluid and of penetrating the brain tissue.

Dosage.—See Iodobismitol.

Sodium iodobismuthite occurs as a red crystalline compound, odorless, or having only a faint acetic or ethyl acetate odor, permanent in dry air and possessing an astringent taste. It yields a clear solution with one part water; on moderate dilution of the solution, sodium iodobismuthite hydrolyzes to form a black precipitate of bismuth iodide in a finely divided state, while on further addition of water the black precipitate changes to red bismuth oxyiodide. Hydrolysis may be retarded by the addition of acids or alkali iodides. The aqueous solution is neutral or faintly acid to litmus. Sodium iodobismuthite dissolves readily and without decomposition in ethylene-glycol, propylene glycol, glycerin, anhydrous alcohol and ethyl acetate; it is insoluble in absolute ether, chloroform, carbon disulphide, petroleum ether, fixed oils and liquid petrolatum. On heating the product in an oven at 80 to 110 C., it loses water of hydration, with slight decomposition, leaving a maroon colored residue that becomes brown or black on aging, and that changes to red on exposure to moisture.

Add 3 cc. of hydrochloric acid and 25 cc. of water to about 0.5 Gm. of sodium iodobismuthite, add an excess of stronger ammonia water, filter and wash the filter with water. Ignite the filter in a quartz crucible; the residue is yellow. A few drops of the filtrate imparts an intense yellow color to a nonluminous flame. Add 3 cc. of ferric chloride solution to a 10 cc. portion of the filtrate acidified with hydrochloric acid, shake with 3 cc. of chloroform; a violet coloration is imparted to the chloroform. Add 5 cc. of chloroform to about 0.2 Gm. of sodium iodobismuthite and shake the mixture; the chloroform remains clear and colorless (*free iodine* and *distinction from quinine bismuth iodide*). Percolate 0.1 Gm. of sodium iodobismuthite with 10 cc. of absolute ether; no residue remains after the evaporation of the solvent. Add 2 cc. of nitric acid to 1.5 Gm. of sodium iodobismuthite in a quartz dish, evaporate on a steam bath and ignite at red heat; dissolve in 5 cc. of hydrochloric acid; the solution meets the requirements of the Bettendorff test, U. S. P. X (*arsenic*). Add just sufficient nitric acid to blacken 3 Gm. of sodium iodobismuthite contained in a 150 cc. beaker, add 100 cc. of water and boil; filter and evaporate the filtrate to 30 cc., filter again and divide the latter filtrate into portions of 5 cc. each. Mix one portion with an equal volume of dilute sulphuric acid: the liquid does not become cloudy (*lead*); precipitate another portion with a slight excess of ammonia water: the supernatant liquid does not exhibit a bluish tint (*copper*); another portion is not immediately affected by barium nitrate solution (*sulphate*). To another portion, add diluted hydrochloric acid; no precipitate is formed which is insoluble in a slight excess of hydrochloric acid, but soluble in ammonia water (*silver*).

Transfer about 0.4 Gm. of sodium iodobismuthite, accurately weighed, to a wide mouth weighing bottle and heat to constant weight in an oven at 110 C.; the loss in weight is not less than 10.5 per cent nor more than 12.5 per cent.

Transfer about 0.2 Gm. of sodium iodobismuthite, accurately weighed, to a beaker, dissolve in 3 cc. of hydrochloric acid and 125 cc. of water, saturate the solution with hydrogen sulphide to precipitate completely the bismuth as bismuth sulphide, filter in a gooch crucible, wash with water, alcohol, chloroform and ether in this order, dry for one hour at 100 C., cool in a desiccator and weigh; repeat the washing with chloroform and ether and the drying at 100 C. until constant weight is attained; the bismuth sulphide weight is equivalent to not more than 21.8 per cent, nor less than 20.3 per cent bismuth.

Transfer about 0.2 Gm. of sodium iodobismuthite, accurately weighed, to a 250 cc. beaker, add 10 cc. of a solution of acid silver nitrate (prepared by dissolving 1 Gm. of silver nitrate in 20 cc. of water and adding 5 cc. of nitric acid) and then 100 cc. of water, allow to stand two hours, filter, using a filter paper, wash well with water. Without allowing the precipitate to dry, puncture the filter and wash the precipitate into a 250 cc. glass-stoppered erlenmeyer flask, using 100 cc. of stronger ammonia water, agitate the solution, then allow the flask and contents to stand two hours, collect the precipitate on a prepared gooch crucible and wash it with diluted ammonia water, then with water; dry to constant weight at 100 C. The weight of silver iodide is equivalent to not less than 60 per cent nor more than 63 per cent iodide. Add 10 cc. of potassium iodide solution to the filtrate and heat on the steam bath until most of the ammonia has been removed, filter the solution and collect the precipitate on a prepared gooch crucible, wash with water, dry to constant weight at 100 C.; the weight of silver iodide is equivalent to not more than 0.7 per cent chloride.

IODOBISMITOL.—A solution of sodium iodobismuthite (sodium bismuth iodide) in ethylene glycol containing 0.1 per cent acetic acid. Each cubic centimeter contains sodium iodobismuthite equivalent to 0.012 to 0.0138 Gm. bismuth (0.0577 Gm. to 0.0664 Gm. sodium bismuth iodide) and 0.109 Gm. to 0.129 Gm. sodium iodide. The total iodide is equivalent to 0.159 Gm. to 0.171 Gm. sodium iodide per cubic centimeter.

Actions and Uses.—Iodobismitol seems to be well absorbed and to be excreted fairly rapidly. In laboratory animals the bismuth enters the brain in from 90 to 100 per cent of the cases, and in human beings treated with the drug it has been shown in the spinal fluid in over 90 per cent of the cases. The claim is made for it that it will penetrate the brain in a great majority of persons treated.

Dosage.—Intramuscular injections of 2 cc. repeated every three days. Two full days should elapse between injections. From eight to twelve injections comprise a course of treatment. A rest period of from two to four weeks should elapse between courses. At each injection the patient would thus receive from 0.024 to 0.0276 Gm. metallic bismuth (0.1154 to 0.1328 Gm. sodium bismuth iodide, and from 0.218 to 0.258 Gm. sodium iodide).

Manufactured by E R. Squibb & Sons, New York, by license of Stanford University. U. S. patent applied for.

The specific gravity of iodobismitol at 25 C. ranges from 1.236 to 1.238. The pH of iodobismitol taken with a quinhydrone electrode ranges from 4.5 to 5.0.

Transfer about 3 cc. of iodobismitol, accurately weighed, to an erlenmeyer flask, add 3 cc. of hydrochloric acid and 125 cc. of water; determine the bismuth according to method outlined under sodium bismuth iodide. Each cubic centimeter contains the equivalent of not less than 0.012 nor more than 0.0138 Gm. Bi.

Add 10 cc. of a nitric acid silver nitrate solution (prepared by dissolving 1 Gm. of silver nitrate in 20 cc. of water and adding 5 cc. of nitric acid) to about 3 cc. of iodobismitol, accurately weighed, and then add 100 cc. of water, allow to stand two hours, filter into a prepared gooch crucible and wash with very dilute nitric acid (5 cc. diluted nitric acid to make 100 cc.), dry to constant weight at 100 C. The weight of silver iodide is equivalent to not less than 0.135 nor more than 0.145 Gm. iodide per cubic centimeter.

The sodium iodobismuthite in iodobismitol conforms to the N. N. R. standards for this substance.

PRELIMINARY REPORTS OF THE COUNCIL

The Council has authorized publication of the following report.

W. A. Puckner, Secretary.

GONOCOCCUS BOUILLON FILTRATE (GONOCOCCUS TOXIN)

In this issue of The Journal, page 532, there appears the preliminary report of Dr. B. C. Corbus, "Intradermal Immunization in Gonorrhea," concerning the experimental and clinical work with a gonococcus bouillon filtrate developed by Clark and Ferry of the Research Department of Parke, Davis & Co. In 1930, Parke, Davis & Co. informed the Council in a preliminary way in regard to the investigation of the product then under way. Later, at the request of the Council the product, together with a copy of the paper by Clark, Ferry and Steele, "Studies of the Properties of a Bouillon Filtrate of the Gonococcus," was presented by the firm for consideration by the Council. In presenting the product, Parke, Davis & Co. stated that the firm regarded it as being entirely on an experimental basis. Dr. Corbus submitted the manuscript of his present paper, a reprint of his paper in collaboration with O'Conor, "Intradermal Injections of Gonococcal Bouillon Filtrate. An Experimental Report" (*J. Urology*, September, 1930), and the manuscript of two other papers. He also submitted letters from a number of physicians who had used the product.

The submitted information and papers were submitted to a consultant of the Council, who reported that the studies of Clark and Ferry showed that their method had produced a soluble and filtrable toxic substance from the gonococcus. Concerning the papers of Corbus and of Corbus and O'Conor, the consultant stated that although these give in great detail the method and indications for treatment by this gonococcus bouillon filtrate under various clinical conditions, there is lack of suitable controls and no data are adduced to support the claim that the product is a satisfactory treatment. The consultant found a number of the letters of physicians submitted by Dr. Corbus to be favorable to the product, others neutral or negative; but taken as a whole these letters did not modify his conclusion that the evidence is inadequate to warrant general use of the product. The Council's referee concurred in the opinions of the consultant, agreeing wholly with the position of Parke, Davis & Co. in not making the preparation available for general use.

While the product itself is, according to the information submitted, of sufficiently controlled composition, the evidence for its clinical value is insufficient, certainly not convincing enough to take it out of the experimental class or to warrant its recommendation for general use. The Council therefore postponed consideration of Gonococcus Bouillon Filtrate (Gonococcus Toxin) to await the development of confirmatory evidence of its clinical value.

Committee on Foods

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION, AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.

RAYMOND HERTWIG, Secretary.

HYGEIA PURE STRAINED PEAS

Contains Vitamin D

Added Irradiated Ergosterol

Manufacturer.—The Snider Packing Corporation, Rochester, N. Y.

Distributor.—Hygeia Nursing Bottle Company, Buffalo, N. Y.

Description.—Strained peas retaining in large measure the mineral and vitamin content of the raw peas used; with added vitamin D (irradiated ergosterol), 60 D units per fluidounce; packed in jars. The D units are those defined by the Council on Pharmacy and Chemistry of the A. M. A. (New and Nonofficial Remedies, 1931, p. 414). One fluidounce is equivalent in vitamin D to the D content of one teaspoonful of cod liver oil. No sugar or seasoning is added.

Manufacture.—The Alaska late variety peas used are grown under contract, and harvested at an early stage of maturity; are removed from the vines by machine, passed through a blowing mill to remove splits and foreign material, washed, blanched for eight to ten minutes in water at 99 C., passed over a sorting table for removal of foreign material, filled into No. 10 enamel lined cans, and a small amount of hot water (90 C.) is added. The cans are sealed and processed for sixty-five minutes at 116 C. No salt or sugar is added.

In preparation for pureeing, the cans of peas are heated in hot water at 82 C., opened and inspected, and the contents are pumped to a paddle type pureeing machine of monel metal with a bronze rotor. Steam is injected into the enclosed pureeing machine to displace the air. The pureed peas are pumped into closed tin lined steam jacketed kettles at as low a point as possible. Steam is injected into the covered kettles to replace the air. The pureed peas are thoroughly mixed with 10 per cent of water to bring about the desired consistency and a definite quantity of irradiated ergosterol dissolved in corn oil is added. The irradiated ergosterol added is sufficient to effect a vitamin D potency equivalent to one teaspoonful of standard cod liver oil per fluidounce of finished product. The mixture is heated, pumped to an automatic filling machine, and filled into washed and preheated jars. The jars are capped under 10 to 14 inches mercury pressure in "vacuum" closing machines, processed for seventy minutes at 115 C., cooled under pressure, and stored for later examination.

Chemical Composition (submitted by manufacturer).—

Specific gravity 20 C./20 C.	1.05
	per cent
Moisture	85.0
Total solids	15.0
Ash	0.5
Fat (ether extract)	0.4
Protein (N × 6.25)	4.6
Starch (acid hydrolysis method)	4.8
Crude fiber	0.5
Carbohydrates other than crude fiber (by difference)	9.0
Calcium (Ca)	0.02
Iron (Fe)	0.001
Phosphorus (P)	0.02

Calories.—0.6 per gram; 17 per ounce.

Vitamins.—The vitamin content of the raw peas is retained in maximum degree in the manufacturing process by the use of equipment and procedure which excludes admixture with air; the vegetable material is exposed to steam atmosphere only. The jarred sieved vegetable is "vacuum treated" before the final processing to remove any incorporated air.

Vitamin D is incorporated in the pureed material to yield a vitamin potency of 60 D units per fluidounce of final product. The D units are those defined by the Council on Pharmacy and Chemistry of the A. M. A. (New and Nonofficial Remedies, 1931, p. 414). The vitamin D is added under license grant from the Wisconsin Alumni Research Foundation under the Steenbock patent.

Claims of Manufacturer.—The sieved peas are recommended for infants, children and convalescents and in special diets. The peas are scientifically prepared to retain to a maximum degree, or so far as is possible by present commercial sieving and canning methods, the natural mineral and vitamin values of peas.

FRANCK TABLETS

A Pure Roasted Chicory Product

Manufacturer.—Heinr. Franck Sons, Inc., Flushing, N. Y.

Description.—Roasted chicory root; ground and pressed into tablets.

Manufacture.—Chicory roots are grown from imported seed usually alongside sugar beets. The operations of harvesting are essentially the same as for sugar beets; lifting, pulling and topping. The roots are washed by machine, sliced, dried in drying kilns, cooled, cleaned of sand and dirt by special machines and roasted for from two to two and one-half hours, after which they are cleaned of ashes and adhering foreign material and finally ground for powdered chicory or crushed for granulated chicory. The chicory in the form of tablets is packed in cartons; the granulated or powdered form is sold in bulk.

Chemical Composition (submitted by manufacturer).—

	per cent
Moisture	3.5
Ash	4.7
Water soluble ash	2.9
Acid insoluble ash	0.4
Fat (petroleum ether extract)	3.6
Protein (N × 6.25)	7.3
Crude fiber	7.9
Reducing sugars as invert	8.6
Sucrose (copper reduction method)	0.4
Total carbohydrates other than crude fiber (by difference)	73.0
Water extract	69.0

Calories.—2.5 per gram; 71 per ounce.

Claims of Manufacturer.—The roasted chicory tablets are suitable for addition to coffee beverage.

PAUL'S SANDWICH BREAD

Manufacturer.—Paul's Baking Corporation, Chicago.

Description.—A white bread made by the sponge dough method.

Manufacture.—The sponge dough ingredients, short patent flour of southwest and northwest wheats, water, yeast and a yeast food containing calcium sulphate, ammonium chloride, sodium chloride and potassium bromate, are mixed in a high speed mixer. The sponge dough is fermented for from four to five hours, after which are added flour, water, salt, sucrose, lard and sweetened condensed skim milk to make the completed dough, which is cut into pieces of desired weight. The pieces are fermented for a short time, molded into loaf form, panned, fermented, baked for from thirty to thirty-five minutes, cooled, and wrapped in wax-paper.

The factory, equipment and storage rooms are kept in strictly sanitary condition.

Chemical Composition (submitted by manufacturer).—

	per cent
Moisture (entire loaf)	35.3
Ash	1.8
Fat (ether extract)	2.8
Protein (N × 6.25)	10.0
Crude fiber	0.3
Carbohydrates other than crude fiber (by difference)	49.8

Calories.—2.6 per gram; 74 per ounce.

Claims of Manufacturer.—A bread of good quality.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, FEBRUARY 13, 1932

FOOD AND HEALTH—A STUDY OF CONSUMERS' HABITS

Knowledge about nutrition seems to be in a state of continual flux. Fifteen years ago Mendel[1] of Yale University, addressing the second Pan American Scientific Congress at Washington, remarked that man no longer depends on his instincts alone for guidance in the affairs of life; otherwise progress would indeed be slow. He pointed out that the problem of food supply is not one which can be dismissed by the social philosopher or solved by the calculations of the economist. It is highly complex with its involvement of factors and interests in agriculture, commerce, industry and nutrition. Here, as in other domains, there is opportunity for an interplay of science and the arts, of experience and investigation. To attempt to foretell the future seems more like an act of ill considered rashness than a keen intellectual venture. We are beginning to learn what real food values mean. There is as yet no ideal ration.

There can be no doubt that changes in the food habits and dietary standards of persons are going on in many parts of the world. It is not always easy to analyze the underlying causes for such dietary changes; they are not always merely physiologic or dominantly economic in origin, as one might expect. Rubner once remarked that sometimes revolutions occur in the field of popular nutrition. The introduction of the potato in many extensive regions is cited as an illustration.

Today our prescribed diets are tending to become more and more complex. In an engaging volume on nutrition and physical fitness, Bogert[2] has asserted that, while a varied diet has many advantages, it is not essential to securing good nutrition. In the simpler civilizations of the past and at present in many parts of the world where, for one reason or another, the food supply is limited, peoples have been and still are being brought to a high degree of physical development and maintained in great sturdiness on diets that consist of only a few foods. Bogert adds that we have in our present-day highly industralized civilization a situation in which, with a wider range of foods to choose from than any people has ever had before, the nutritional condition and physical vigor of our nation has unquestionably deteriorated.

Without accepting this challenge in regard to the "state of the nation," so far as the bodily welfare of the people is concerned, it may nevertheless be admitted that current customs with respect to foods are not devoid of surprising vagaries. A recent writer[3] ventures to believe that American food habits have not been developed as a result of necessity but are matters of choice or fancy. Changes in the proportions of different foodstuffs grown or manufactured have been based largely on what people could be induced to buy rather than to supply a population ready to purchase whatever foodstuffs were available. This situation, Sherman concludes, has led to a great deal of advertising and propaganda to induce consumers to change their food habits. Among the inducements offered have been novelty, attractiveness, convenience and, most successful of all, health appeal.

A few illustrations regarding our changing choices of food are elucidating. Sugar, once consumed in quantities less than ten pounds per annum for each person, is now used to ten times this extent—more than a hundred pounds in the course of the year. Greater availability and low costs have transformed what was merely a condiment into a food that supplies one seventh or more of the nation's calories. Within ten years the haulage of spinach on the railroads has increased, despite the protests of American children importuned to eat it, from 2,500 carloads to 10,000 carloads a year; lettuce shipments have been quadrupled within the decade. The citrus fruit industry has been rescued from the grave dangers of overproduction. New dietary customs have been initiated.

Wisdom is by no means always the guide in these changes. Sherman[3] has pointed out the almost universal habit of selecting foods by the eye and the difficulty encountered in attempts to substitute any more scientific test in the place of the visual. In the development of commercial grades and standards for fruits and vegetables we are constantly confronted with the fact that commercial values are largely dependent on appearance. If our first, second and third grades for any fruit or vegetable are to represent differences in commercial value we find ourselves often compelled to give major weight to factors that have no dietetic significance. Recent emphasis on the value of certain "greens" as "protective foods" may be responsible for certain current absurdities in practice. As pointed out by Sherman,

> Certainly there is little to be said in defense of our recently developed habit of shipping tens of thousands of carloads of carrots, beets, turnips, radishes, and even parsnips for

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[1] Mendel, L. B.: Changes in the Food Supply and Their Relation to Nutrition, New Haven, Yale University Press, 1916.

[2] Bogert, L. J.: Nutrition and Physical Fitness, Philadelphia, W. B. Saunders Company, 1931.

[3] Sherman, W. A.: Food Supplies and Consumers' Habits, J. Home Economics **23**: 1103 (Dec.) 1931.

> thousands of miles, paying freight upon countless tons of tops which no one uses and which, if they arrive wilted, or decayed, are a positive detriment to the product. With the exception of a very few beet leaves, these vegetable tops all go into the garbage can, as do the green stems which surround the head of the cauliflower, and the outer leaves of all cabbage and lettuce. Here, it seems to me, is an enormous economic waste and one which is growing annually.
>
> All of these southern and Pacific Coast vegetables shipped fresh under refrigeration with tops or green foliage attached bear a freight rate which, in many cases, represents nearly fifty per cent of the delivered value of the product. It is safe to say that in the case of many of these products about thirty per cent of the bulk, and perhaps fifteen to twenty-five per cent of the weight, consists of tops and leaves which finally disappear as trimmings. The heavy transportation and icing charges which have been paid on this useless foliage must be recovered in the price of that part of the goods actually consumed.
>
> If it should prove that we are now nearer the beginning than the end of a period of economic readjustment, and if before it is ended the average American family will be willing to give more careful thought to the cost and character of its food than it has been necessary to do in recent years, it may be well for us to consider the possibility of modifying the consumer's point of view so that she will not demand that freight be paid upon so much garbage which she never uses but which adds materially to the cost of what she does use.

American food habits should become rationalized with respect alike to health and to economy at a time when distress is threatening thousands of persons.

EXPERIMENTAL NEURO-ALLERGY

In 1930 Dr. D. A. Shamburov[1] of the Neuropsychiatric Institute, Moscow, claimed that stock vaccines may be injected with safety into the cerebrospinal fluid and that so injected they exert a favorable influence on certain chronic infections of the central nervous system. More recently two important studies have been made by American investigators[2] of the immunophysiology of subarachnoid and nervous tissues having a direct bearing on the feasibility of Shamburov's proposed local vaccination. In his preliminary experimental work on rabbits the Russian investigator showed that by routine subcutaneous or intraperitoneal injections of vaccines the specific antibody titer of the cerebrospinal fluid cannot be raised higher than from 0.125 to 0.25 per cent of the corresponding titer of the blood stream. By injecting the same vaccines by suboccipital puncture into the subdural space, however, he found that the antibody content of the cerebrospinal fluid could be increased to as much as 20 per cent of that of the circulating blood and that it remained at this unusual high titer for at least two months. Shamburov assumed that this high local antibody titer must logically exert a favorable influence on homologous chronic infections of the central nervous tissue. A criticism of this logic is implied in the more recent studies of the antibody content of nervous tissues by Dr. Jules Freund[2] of the Phipps Institute, Philadelphia. Freund found that in both active and passive immunization the specific antibody titer of the central nervous tissues of rabbits is at least three times greater than that of the surrounding cerebrospinal fluid. From this he was forced to conclude that "it is very unlikely that . . . antibodies reach the brain tissues by way of the cerebrospinal fluid," the cerebrospinal fluid apparently being a mere mechanical drainage fluid from the interstitial tissue spaces. If this conclusion is correct the cerebrospinal fluid can have little or no local immunologic action except on the meningeal surfaces with which it is in immediate contact. There is therefore reasonable doubt that the Shamburov technic for local vaccination can influence local infections of the central nervous tissues, except indirectly by absorption of the locally synthesized or locally mobilized antibodies into the systemic blood stream.

The most serious objection to the proposed subarachnoid vaccination, however, is implied in the currently published researches of Davidoff and Kopeloff[2] of the Psychiatric Institute, New York. These investigators developed a new technic for the study of neuro-allergies. They trephined dogs over the left motor area and inserted into the underlying cerebral tissues a small cube of normal horse serum stiffened with 6 per cent agar, followed by a routine sensitizing dose of horse serum intravenously. The slight transient hemiplegia resulting from the purposeful [sic] injury to the cerebral cortex disappeared within a few days. At the end of the usual sensitization period the dogs were tested by an intravenous injection with a sublethal dose of horse serum. In four of the five dogs thus far studied by this dual technic the classic picture of anaphylaxis was complicated by a "definite right-sided hemiplegia within a few minutes after the intravenous injection." American clinicians will not be tempted to use the Shamburov local subarachnoid vaccines till more extensive experimental studies have been made of this potentially dangerous local neuro-allergy.

PHYSICAL TRAINING AND METABOLISM

In his volume on the physiology of muscular exercise, Bainbridge[1] remarked more than a decade ago that the real value of exercise probably lies mainly in its effects on the metabolism of the tissues themselves. Some investigators have looked to changes in the heart and in the circulatory and respiratory mechanisms as the foremost factors involved in that adjustment described as physical training. The trained athlete is supposed to work more "efficiently" than his untrained companion; but as efforts to interpret the advantage in terms of increased efficiency of breathing or circulation alone have not been convincing in every instance, one must look elsewhere for a tenable explanation. The muscle cells at once suggest themselves as the center

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[1] Shamburov, D. A.: Ztschr. f. Hyg. u. Infektionskr. **111**: 278 (April) 1930.

[2] Freund, Jules: J. Exper. Med. **51**: 889 (June) 1930. Davidoff, L. M., and Kopeloff, Nicholas: Proc. Soc. Exper. Biol. & Med. **29**: 71 (Oct.) 1931.

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[1] Bainbridge, F. A.: The Physiology of Muscular Exercise, London, 1919, p. 184.

of interest. Is their characteristic exchange of energy altered? If so, this should exhibit itself in an altered basal metabolism. Recognizing that metabolism is a cellular process, that each living cell uses its share of the total oxygen absorbed by the individual, Schneider[2] has pointed out that our real problem is to determine whether or not the cellular processes of the body are accelerated, retarded or unaltered by training. If the cells are stimulated to increased activity, they will use more oxygen; but if the life process becomes more efficient, they will use less oxygen. Training may so affect the cells that they will use, even in rest, more oxygen or less oxygen than formerly; or it may not alter their usage of oxygen. There is a widespread opinion, Schneider continues, that the body is physically and mentally more efficient if regular physical exercise is taken. While we cannot at present prove that cellular metabolism becomes more efficient as a result of training, if we assume that it does an explanation is at hand for the fall in the basal metabolism seen in some athletes and nonathletes during a period of training.

The facts as determined by Schneider and his co-workers at Wesleyan University in Middletown, Conn., indicate that the basal metabolic rate of all men does not respond in the same manner to a period of physical training. Of seven nonathletes who were under observation during periods of daily moderate physical exercise, three showed an appreciable fall, two a rise, and two no change in the metabolic rate. Among ten athletes, eight showed a drop in the basal metabolic rate during training, one an increase, and another no change in the rate. The literature on this subject reveals that some workers in this field have reported that physical training causes a rise while others have reported that it causes a fall in basal metabolism.

An ingenious interpretation of these seeming contradictions has been offered by Schneider. If, as already remarked, the life processes in the muscle cells become more efficient through use, they may require less oxygen. Their basal metabolism will fall. On the other hand, if a period of physical training should at the same time result in an increase in the mass of active tissue in the body, we must assume that the added protoplasm requires its share of oxygen and that this increases the total oxygen requirement of the body.

Somewhat antagonistic influences may thus present themselves as the result of training. In the words of Schneider: If during a period of training the gain in cellular efficiency overbalances the gain in the mass of body protoplasm, a fall in the basal metabolic rate will result. If, on the other hand, there occurs a considerable increase in the size of muscles, due to a formation of active protoplasm, this may overshadow the gain in cellular efficiency and result in an increase in the basal metabolism. Lastly, if the increase in efficiency should just be counterbalanced by the new production of protoplasm, the basal metabolic rate of the individual would remain unchanged during a period of physical training. From such standpoints the apparent inconsistencies in our current information become at least less disconcerting to a critical reviewer.

Current Comment

PHYSICIANS' INCOME TAXES

Physicians are advised to file their federal income tax returns without further delay. They must be filed not later than March 15. The congressional committee that is drafting new income tax legislation has not submitted a report. It has been announced, however, that such changes as may be agreed on will not affect taxes payable under the present law and computed on the basis of income received in 1931. The possibility of having to file supplemental returns if regular returns are filed now seems therefore to be negligible. Elsewhere in this issue of The Journal[1] is a statement for the guidance of physicians in filing their returns.

OPINIONS ON PRESCRIPTIONS OF ALCOHOL

Hearings before the Senate committee that is concerned with the bill introduced by Senator Bingham to modify the prohibition regulations have brought to light some astounding testimony. Among those who have participated in giving evidence was a former president of the American Medical Association—Dr. Arthur Dean Bevan. It is unfortunate that physicians should testify beyond their scientific opinions regarding the effects of alcoholic liquors on the human body. Dr. Bevan seems to have ventured positive statements on the social effects of alcohol and on the ethical aspects of medical prescribing. In proffering his opinions, Dr. Bevan demonstrated an extraordinary lack of confidence in his professional brethren. He moralized on the terrific temptation confronting the profession through the fact that many physicians have incomes of approximately $2,500 a year and, in the right to prescribe, have seen, in his opinion, an opportunity to make $1,200 extra. Dr. Bevan is apparently familiar with the cost of whisky per case at corner drug stores; he asserted that a considerable number of physicians were providing the signed prescriptions that permitted druggists and bootleggers to sell this liquor by the case. The Journal wishes to protest editorially against this expression of opinion by one of the past presidents of the Association. If Dr. Bevan has actual evidence that any physician is selling his prescriptions *en masse* in order to permit druggists and bootleggers to dispose of whisky in case lots, he, and all of those who possess the information, are equally guilty with those who are violating the law in permitting the violation. If he has not the evidence, he is certainly without warrant in making such a statement to a Senate committee; in any event he is not justified in indicting the entire profession for the misdemeanors of a few. His statement reflects great discredit on a profession whose ideals are certainly as high as those of any other professional group in the country. As a leader of that profession for one year, he should be more familiar than he seems to be with its ethical standards and with the extent to which physicians actually are guided by a proper appreciation of moral values.

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[2] Schneider, E. C., and Foster, A. O.: The Influence of Physical Training on the Basal Metabolic Rate of Man, Am. J. Physiol. 98: 595 (Nov.) 1931.

[1] Page 574.

Association News

MEDICAL BROADCAST FOR THE WEEK

American Medical Association Health Talks

The American Medical Association broadcasts on Monday from 12 noon to 12:05 p. m. over Station WBBM (770 kilocycles, or 389.4 meters) and other stations of the Columbia Broadcasting System, and on Wednesday and Friday from 2:25 to 2:30 p. m. over Station WBBM, Chicago.

The program for the week is as follows:

February 15.	Trends in Mental Diseases.
February 17.	Prevent Death if Not Disease.
February 19.	Baby's First Bath.

There is also a fifteen minute health talk sponsored by the Association on Saturday morning from 11:15 to 11:30.

The program for the week is as follows:

February 20.	Goiter—Enlargement of the Thyroid Gland.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

CALIFORNIA

Bureau of Sanitary Engineering.—At a special meeting of the board of health of San Francisco, Dec. 14, 1931, a resolution was unanimously adopted requesting the appointment of Charles Gilman Hyde, professor of sanitary engineering of the University of California, as consulting sanitary engineer to the director of public health of San Francisco. This appointment resulted in the formation of a bureau of sanitary engineering. Under a new charter, effective January 8, the title of Dr. Jacob C. Geiger, city health officer, became director of public health.

Two Deaths from Trichinosis.—Two persons died from trichinosis in San Francisco recently, after having eaten undercooked sausage which was received as a gift from a friend in Marin County. The animal from which the sausage was made had been killed, Dec. 17, 1931. Sausage, salami and other products were manufactured on the ranch where the animal was killed. It was thought that at least twelve persons had been exposed, but, according to the bulletin of the state department of health, January 23, the two fatalities were the only cases reported.

Society News.—Dr. Willis C. Campbell, Memphis, Tenn., addressed the San Diego Academy of Medicine, January 19, on "Treatment of Affections of the Lumbosacral Region." He spoke on "Treatment of Ankylosed Joints" before the Los Angeles County Medical Association, January 21.——The San Diego County Medical Society was invited by the commanding officer, U. S. Naval Hospital, to be present at a special program, January 15, when Drs. John V. Barrow gave an address on "Human Amebas"; William C. Boeck, "Colitis," and William H. Daniel, Los Angeles, a proctologic clinic.——Dr. Ellis W. Jones, among others, addressed the Los Angeles Clinical and Pathological Society, January 28, on "Trochanteric Transplantation in Treatment of Fractures of the Neck of the Femur."——Dr. Delbert H. Werden spoke on "Intracranial Venous Anomaly" before the Los Angeles Society for Neurology and Psychiatry, January 27; Drs. George H. Patterson and Arthur R. Timme were also on the program.——Dr. Loyal Davis, Chicago, addressed the Los Angeles Surgical Society, February 12, on "Experimental and Clinical Studies on the Pathways of Transmission of Pain and Its Surgical Relief."——An addition to the department for acute mental disease of Livermore Sanitarium, Livermore, was recently opened; the annex provides eight sound-proof rooms.——At the meeting of the Los Angeles County Medical Association, February 4, the speakers were Drs. Jay J. Crane and George F. Schenck on "Transureteral Resection of Bladder Neck Obstruction"; William Dewey Wightman and Shuler F. Fagan, "Margin of Safety and Technic of Spinal Anesthesia," and Philip J. Murphy, "Diagnosis and Surgical Judgment in Acute Abdominal Pain."——At the meeting of the San Francisco Pathological Society, February 1, the program included addresses by Drs. Margaret Schulze, San Francisco, and Frederick Proescher, Agnew, on "Granulosa Cell Tumor of Ovary" and "Chemistry of Neuroglia Staining," respectively.

COLORADO

Dr. Bloodgood to Conduct Clinics.—Dr. Joseph C. Bloodgood, clinical professor of surgery, Johns Hopkins University School of Medicine, Baltimore, will hold two microscopic-pathologic clinics, February 25-26, under the auspices of the Clinical and Pathological Society of Denver. Dr. Bloodgood will also give a lecture the second day on "What Every Doctor Should Know About the First Sign of Cancer."

Society News.—At the January 19 meeting of the Medical Society of the City and County of Denver, Drs. Duval Prey and Ora S. Fowler spoke on "Procedure That Should Be Routine in the Postoperative Conduct of a Surgical Case" and "Renal Syndrome with Hypocortinism," respectively. Dr. Willis C. Campbell, Memphis, addressed the society, February 2, on arthroplasties.——Samuel J. Lewis, D.D.S., Detroit, addressed the Denver Dental Association meeting jointly with the Denver County Medical Society, February 11, on "Child Growth and Development, with Special Reference to the Development of the Bones of the Teeth and Jaws."

CONNECTICUT

Society News.—At the annual meeting of the Connecticut Public Health Association in Hartford, January 14, the speakers included Drs. Nathan M. Spector, Willimantic, and Harry B. Smith, epidemiologist, state department of health, on "Milk-Borne Typhoid Fever"; Raymond D. Fear, Stamford, and Albert E. Austin, Old Greenwich, "Diphtheria Toxoid," and William F. Wild, Bridgeport, Louis J. Dumont, New Britain, and Benjamin B. Robbins, Bristol, "Smallpox as a Public Health Problem."

Lafayette Mendel Presented with Portrait.—On his sixtieth birthday, February 5, Lafayette B. Mendel, Ph.D., Sterling professor of physiologic chemistry at Yale University School of Medicine, New Haven, was presented with a portrait of himself by John Quincy Adams, Viennese artist. Professor Mendel obtained his B.A. degree from Yale in 1891. He began teaching physiologic chemistry at Yale the following year, and, except for periods of study at Breslau and Freiburg, has been at the school continuously for forty years. He is a member of the governing boards of the school of medicine, Sheffield Scientific School and the Graduate School of Yale University. In 1893, Yale conferred the degree of Ph.D. on him. He was gold medalist of the American Institute of Chemists in 1927. Professor Mendel is well known for his analysis of the value of food constituents as shown by their influence on growth.

DISTRICT OF COLUMBIA

District Bills in Congress.—S. 1569 has passed the Senate, authorizing the Commission on Licensure to Practice the Healing Art to license Della D. Ledendecker to practice chiropractic in the District of Columbia.

FLORIDA

No Deaths from Diphtheria.—According to the annual report of the director of public welfare and local registrar, Miami did not have one death from diphtheria among its own people during 1931, the first time this record has been attained since Miami began the compilation of statistics. The report says that a resident of Coral Gables, an adjoining city, came to Miami and died within a few hours of diphtheria.

Society News.—A recent meeting of the Volusia County Medical Society was addressed by Dr. Hugh West, DeLand, on hyperthyroidism, and Dr. Charles A. Clemmer on arteriosclerosis.——The Pinellas County Medical Society was addressed, Dec. 3, 1931, at Clearwater, by Drs. Louis M. Orr, Jr., Orlando, on "The Urologist and the Practice of Medicine," and Gaston H. Edwards, Orlando, on "Relationship of the Practitioner to the County Society and the State Association."

ILLINOIS

Society News.—Dr. William K. McIntyre, St. Louis, addressed the Adams County Medical Society, Quincy, February 8, on "Cancer of the Large Intestine."——Dr. Andrew C. Ivy, Chicago, addressed the Peoria City Medical Society, February 2, on "Physiological Aspects of the Etiology, Symptoms and Treatment of Gastroduodenal Ulcer."——The La Salle County Medical Society was addressed, February 9, by Drs. Robert S. Berghoff, Chicago, on "Syphilis of the Heart," and Arno B. Luckhardt, Chicago, "Ethylene Anesthesia" and "Importance of Animal Experimentation in the Advancement of Medical Knowledge."——Dr. Edmund Andrews, Chicago, addressed the Will-Grundy County Medical Society at Joliet, February 10, on "Intussusception."

Chicago

Society News.—The Chicago Gynecological Society will be addressed, February 19, by Drs. Louis Rudolph and Andrew C. Ivy on "Internal Rotation of the Fetal Head: From the Viewpoint of Comparative Obstetrics," and Dr. Henry Schmitz, "Technic of Irradiation in Uterine Carcinomas."——At the meeting of the Chicago Roentgen Society, February 10, the speakers included Drs. Cassie B. Rose on "Unusual Periostitis in Children"; Roe J. Maier, "Malignancy Originating in a Paget's Disease," and Maurice I. Kaplan, "Giant Cell Tumor of Humerus That Responded to Deep X-Ray Therapy."——Dr. James E. Lebensohn, among others, will address the Chicago Ophthalmological Society, February 15, on "Radiational Cataract."——The Chicago Society of Allergy will be addressed, February 15, among others, by Drs. Samuel J. Taub and Harry S. Arkin on "Asthma Due to Ingestion of Yeast."

KANSAS

Society News.—The Wyandotte County Medical Society was addressed in Kansas City, February 2, by Drs. La Verne B. Spake on "Surgical Mastoid" and Lewis W. Angle, "Bilateral Phrenicectomy for Persistent Hiccups." The society will be addressed, February 16, by Drs. Don Carlos Peete and Donald N. Medearis, Kansas City, on "Diagnosis and Treatment of Syphilitic Aortitis" and "Artificial Feeding of Infants," respectively.——Dr. Leslie C. Bishop, Wichita, addressed the Ford County Medical Society, Dec. 11, 1931, on hysteria.——At the meeting of the Harvey County Medical Society in Newton, Dec. 7, 1931, Drs. Lloyd O. E. Peckenschneider and Vern L. Pauley, both of Halstead, spoke on septicemia and preoperative treatment of the prostate, respectively.——Dr. William R. Dillingham, Salina, addressed the Saline County Medical Society, Dec. 10, 1931, on "Treatment of Normal Breech Presentation." Dr. Earl L. Vermillion, Salina, was elected president at this meeting.——Dr. John M. McWharf, Ottawa, among others, addressed the Anderson County Medical Society, Dec. 22, 1931, on the past and future of medicine.——Dr. Fred B. Kyger spoke on "Some Problems in Obstetrics" before the Golden Belt Medical Society at Manhattan, January 7, and Dr. Harry C. Berger, Kansas City, Mo., on "Visceroptosis in Children."——A round table discussion on improvements in medical and surgical treatment during 1932 was a feature of the meeting of the Wilson County Medical Society, January 11.——Dr. Paul S. Mitchell, Iola, will address the Sedgwick County Medical Society, Wichita, February 16, on "A Perspective and Aims of Our Society," and John Parkhurst, D.D.S., Iola, will discuss "Medical Legislative Problems." The society was addressed, February 2, by Drs. Thor J. Jager and Ernest M. Seydell, Wichita, on "Vesalius" and "Mastoiditis—Practical Considerations," respectively.

KENTUCKY

Society News.—A symposium on neoplasms of the urinary bladder was presented at the meeting of the Jefferson County Medical Society in Louisville, January 4, by Drs. James R. Stites, diagnosis; John T. Bate, Jr., treatment, and Joseph A. Bowen, neurologic aspects. Dr. Frank P. Strickler addressed the society, January 18, on "Surgery of the Common Bile Duct."——Dr. Eslie Asbury, Cincinnati, addressed the Bourbon County Medical Society, January 22, on treatment of fractures.——Drs. Irvin Abell and Adolph O. Pfingst, Louisville, addressed the Harlan County Medical Society, Harlan, January 23, on "Retrodisplacement of the Uterus" and "Eye Complications Following Fractures of the Skull," respectively.——At the quarterly meeting of the Southwestern Kentucky Medical Society, Hickman, February 4, speakers were Drs. Thomas D. Moore, Memphis, on "Instrumental Correction of Prostatic Obstruction"; Robert Lyle Motley, Memphis, "The Heart in Health and Disease," and Tinsly R. Harrison, Nashville, "Diagnosis of Organic Heart Disease."

Bills Introduced.—S. 142 and H. 224, to amend the pharmacy practice act, propose to abolish the registration of assistant pharmacists. S. 198 and H. 321, to amend the pharmacy practice act, propose to abolish the registration of assistant pharmacists and to allow present registered assistant pharmacists to be licensed, without examination, as registered pharmacists. S. 141 and H. 223, to amend the pharmacy practice act, propose that the board of pharmacy shall meet at least semiannually on the second Tuesday of January and July, instead of once in three months, as the present law provides. S. 145 and H. 162 propose a new dental practice act. S. 217 and H. 448 propose to create a state board of hairdressing and cosmetology examiners. Licentiates of the proposed board would be enabled, among other things, "to remove superfluous hair from the body of any female person." S. 149 and H. 246, to amend the law relating to chiropractic, propose to raise to $3 the annual renewal fee required of chiropractors. S. 290 proposes to authorize the establishment at each of the state hospitals for the insane a training course for attendants. H. 391 and H. 392 propose to create a board of barber and beautician examiners and to regulate the practice of barbering and beauty culture.

MASSACHUSETTS

Bills Introduced.—H. 188 proposes to create a board of magnetic healers' examination and registration and to regulate the practice of magnetic healing, defined as "the science of reviving and producing life and circulation in the nerve system and cells, so as to heal all nerve affections." No educational qualifications whatsoever are to be required of applicants. H. 787 authorizes courts to declare a marriage void where either spouse has been incurably insane for five years or more.

Survey of Health Education Activities.—The first comprehensive survey of health education activities in Boston is being undertaken. This study will include the activities of the Boston Health Department, the schools, city medical institutions, private agencies and commercial groups. The work will be carried on under the supervision of the health education committee of the Boston Health League, of which Clair E. Turner, professor of biology and public health at the Massachusetts Institute of Technology, is chairman.

Society News.—Mr. James M. Curley, mayor of Boston, addressed the William Harvey Society, January 8, on "What the City of Boston Is Doing to Promote the Public Health."——The Watertown Physicians' Society was addressed, January 4, in Watertown by Dr. Benjamin Tenney, Jr., Boston, on "Some Common Obstetrical Problems."——"Diagnosis and Treatment of Gonorrhea and Syphilis" was the subject discussed by Drs. Nels A. Nelson, James Dellinger Barney, Austin W. Cheever and Arthur C. Pearce, Boston, before the Waltham Medical Club, January 7.——The Harvard Medical Society was addressed, January 12, by Dr. William F. Rienhoff, Jr., Baltimore, on "Some Experimental Observations on the Thyroid Gland."——Dr. Harry C. Solomon, Boston, addressed the Essex South District Medical Society, January 6, on "Modern Treatment of Syphilis." The society was addressed, February 10, by Drs. Lincoln F. Sise and Harry H. Germain on "Selection of the Anesthetic for the Patient and Operation."——The Norfolk South District Medical Society was addressed, January 7, by Dr. William Reid Morrison on surgery of the stomach.——Dr. Joseph H. Fay, Melrose, addressed the Middlesex East District Medical Society, January 13, in Melrose, on "Treatment of Hip Fractures." Dr. Kenneth L. Maclachlan, Melrose, spoke on "Anemia in Obstetrics."——The South End Medical Club was addressed, January 19, by Dr. Harry W. Goodall, Boston, on "Carcinoma of the Colon."

MINNESOTA

Physician Sentenced to Penitentiary.—Dr. Torsten Ohrbom, St. Paul, Dec. 24, 1931, began to serve a sentence of three years and six months in the U. S. Penitentiary Annex, Fort Leavenworth, Kansas. The *Journal-Lancet* states that Dr. Ohrbom was sentenced "for faking government morphine certificates and obtaining the dope for his own use."

Society News.—Dr. Charles N. Spratt, Minneapolis, addressed the Hennepin County Medical Society, January 10, on "Treatment of Eye Injuries." The society was addressed, February 10, by Drs. Walter H. Fink and Albert H. Parks, Minneapolis, on "Optic Nerve Changes in General Diseases" and "Economic Therapeutics," respectively.——Dr. Clifton F. McClintic, Williamsburg, W. Va., among others, addressed the

Rice County Medical Society, Dec. 16, 1931, on headaches.——The Red River Valley Medical Society was addressed, Dec. 8, 1931, by Drs. Lyle L. Brown and Joseph G. Parsons, both of Crookston, on "Presentation of Some Bone Lesions in Children" and "Management of Mastoiditis," respectively.——At the meeting of the Minnesota Academy of Medicine, February 10, the speakers were Drs. Kenneth Bulkley on "Rôle of Oxyuris and Trichocephalus in the Etiology of Appendicitis"; Archa E. Wilcox, "Extraperitoneal Cyst," and Arthur E. Benjamin, "Nasal Catheter Suction Treatment of Postoperative Vomiting, Pain and Dehydration."

Violation of Basic Science Law.—Carl Beyer, operator of the Beyer System Clinic, Minneapolis, pleaded guilty to practicing healing without a basic science certificate, January 18, and was sentenced by Judge Reed of the district court to pay a fine of $200 or serve sixty days in the Minneapolis workhouse. The defendant paid the fine. According to the state board of medical examiners, Beyer has for several years been operating the Beyer System Clinic and claiming a successful treatment for diabetes, gallstones and other ailments over the radio and in local newspapers. As a result of this advertising, a farmer living near Shafer took his 16 year old boy to the clinic for treatment for diabetes. He paid Beyer $325 cash in advance. The boy's condition did not improve, and the father, learning that Beyer was not licensed, complained to the medical board. Beyer was arrested, January 8, and released on $1,000 bail. He was for some time prior to 1914 in the "patent medicine" business in Winnipeg, Manitoba, according to the state board. He claims to be from Austria and to be a dietitian.

MISSISSIPPI

Bill Introduced.—S. 100 proposes to prohibit the use of the words "drug store," "pharmacy," "apothecary," or similar names in places where no registered pharmacist is employed.

NEW JERSEY

Bill Enacted.—S. 7, approved by the governor, February 1, authorizes cities which maintain no municipal hospitals to enter into contracts with any regularly incorporated hospitals located in said cities and to pay such hospitals a sum not exceeding one mill on every dollar of assessable property located in the said cities for the purpose of maintaining and caring for such indigent patients as may be sent to such hospitals by the order of designated city officials.

Personal.—Dr. Berthold S. Pollak, medical director of the Hudson County Tuberculosis Hospital and Sanatorium, Secaucus, was the guest of honor at a reception at the sanatorium, January 31, marking his twenty-fifth anniversary in that position.——The Bergen County Medical Society held its annual dinner, Dec. 3, 1931, in honor of Dr. William L. Vroom, Ridgewood, who had completed forty-three years of practice. Dr. Vroom discussed the history of medicine in the county.

Extension Courses in Medicine.—For the third successive year the Medical Society of New Jersey and the extension division of Rutgers University, New Brunswick, are cooperating in the presentation of a series of graduate courses for physicians. The courses are being given in fifteen of the twenty-one counties of the state and are adjusted to meet the wishes of the county societies. They consist of eight weekly lectures, the starting dates covering the period from December 3 to April 7. Lecturers thus far announced include many physicians from the staffs of New York medical schools. The first course began, December 3, at Newton, Sussex County, with a schedule of four lectures each on fractures and newer drug therapy. Other subjects which will be used according to the desires of the local society include neurology, gynecology, pediatrics, traumatic surgery, obstetrics, gastro-enterology and surgery. Twenty-four courses have thus far been arranged for the fifteen centers, with a likelihood of additional centers to be established and other courses to be added, according to an announcement from the university extension division.

Society News.—The Bergen County Medical Society has adopted a junior membership for the physician who has been practicing less than one year, with one fourth the regular annual dues.——The twenty-second annual conference of New Jersey Health Officials was held, February 5, at Trenton. Among the speakers was Carl E. Buck, Dr.P.H., field director of the American Public Health Association, New York, on public health administration by county health departments.——A symposium on obstetric subjects comprised the program of the Hudson County Medical Society, Jersey City, February 2, with the following speakers: Drs. Arthur W. Bingham, East Orange, Edward G. Waters and Samuel A. Cosgrove, both of Jersey City.——Dr. Henry B. Decker, among others, addressed the Camden County Medical Society, Camden, February 2, on recent advances in bacteriology.——Dr. Matthew White Perry, Washington, D. C., addressed the Atlantic County Medical Society, Atlantic City, February 12, on "Neglected Considerations Concerning Colitis."——Dr. Joseph Jordan Eller, New York, addressed the Monmouth County Medical Society, Long Branch, January 27, on "Diagnosis and Treatment of Malignant Lesions of the Skin."

Bills Introduced.—S. 47, to amend the dental practice act, proposes to permit the licensing of dental hygienists, who are to have the right "to mechanically remove calcareous deposits, secretions and stains from the exposed surfaces of the teeth and directly beneath the normal free margins of the gums and to polish the teeth" but are not to perform any other operation on the teeth or tissues of the mouth. S. 48 proposes to make it a misdemeanor for any person to secure medical and surgical treatment from any governmental or charitable hospital or institution, free or at reduced rates, by means of false representations with respect to his financial condition. A. 63 proposes to allow villages and townships, as well as boroughs and towns, to make appropriations to private hospitals. A. 68 proposes to permit cities having no city hospital to appropriate not exceeding $20,000 annually toward the maintenance of any private hospitals located therein. A. 72, to amend the workmen's compensation act, proposes to permit injured employees to select their own physicians. A. 73 proposes to create a board of barber examiners and to regulate the practice of barbering.

NEW YORK

New Cancer Laboratory.—A new biologic laboratory is being completed shortly at Springville, Erie County, for the State Institute for the Study of Malignant Disease, Buffalo. The building, which replaces an old structure, affords about 1,300 square feet of space on the main floor. It will house several thousand animals, chiefly mice, used in the experimental study of cancer. It will have facilities for chemical, microscopic and histologic work and for transplantation of tissue, injections and other procedures.

Health at Utica.—Telegraphic reports to the U. S. Department of Commerce from eighty-three cities with a total population of 36 million, for the week ended January 30, indicate that the highest mortality rate (25.4) appears for Utica and the rate for the group of cities as a whole, 11.5. The mortality rate for Utica for the corresponding week last year was 14.8 and for the group of cities, 15.1. The annual rate for the eighty-three cities for the four weeks of 1932 was 12, as against a rate of 14.4 for the corresponding period of the previous year. Caution should be used in the interpretation of weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits or that they have large Negro populations may tend to increase the death rate.

Bills Introduced.—S. 415 and A. 591, to amend the law requiring the licensing of private institutions for the treatment of the mentally deficient, propose that the commissioner of mental hygiene be authorized to license such institutions for a definite period. S. 450 proposes that all certificates of birth contain photographs of the finger prints of the mother and the foot prints of the child. S. 546 and A. 464, to amend the workmen's compensation act, propose, in effect, to make compensable any occupational disease contracted in any employment covered by the act. A. 584, to amend the workmen's compensation act, proposes, in effect, to permit an injured employee to select his own physician. A. 596 proposes to create a board of barber examiners and to regulate the practice of barbering.

New York City

Brickner Lecture.—Dr. Albert A. Epstein gave the second Walter M. Brickner Lecture at the Hospital for Joint Diseases, Tuesday, February 9, on "Surgery in the Diabetic."

Fifth Harvey Lecture.—Dr. Andrew C. Ivy, professor of physiology and pharmacology, Northwestern University School of Medicine, Chicago, will give the fifth Harvey Society Lecture at the New York Academy of Medicine, February 18, on "Factors Concerned in the Evacuation of the Gallbladder."

Perkin Medal Awarded.—Charles Frederick Burgess, Ph.D., chemical engineer, has been awarded the Perkin Medal for 1932 by the American section of the Society of Chemical Industry. This medal is presented each year to the "American chemist who has most distinguished himself by his services to applied chemistry," who is selected by a committee representing the Society of Chemical Industry, the American Chemical Society, the American Electrochemical Society, the American Institute of Chemical Engineers and the Société de Chimie Industrielle. Dr. Burgess, a native of Wisconsin, taught for a number of years at the University of Wisconsin. He is the inventor of a process for the electrolytic purification of iron and many other chemical processes dealing particularly with storage batteries. He devised an apparatus for sterilizing liquids with nascent chlorine which has been used in hospitals to treat infected wounds and by explorers for sterilizing drinking water. The Perkin medal was founded in 1906 at the time of the Perkin semicentennial celebration of the coal tar discoveries and was first awarded to Sir William Henry Perkin himself. The presentation to Dr. Burgess was made, January 8, at a dinner of the interested societies in New York.

OHIO

Society News.—Drs. Paul M. Holmes and Barney J. Hein, Toledo, addressed the Putnam County Medical Society, Ottawa, January 5, on diagnosis of pulmonary tuberculosis and fractures, respectively.——Drs. Charles E. Held, Akron, and Marion D. Douglas, Jr., Cleveland, among others, addressed the Union Medical Association of the sixth district, Canton, January 13, on "Diabetes Mellitus—A Definition" and "Backache of Gynecological Origin," respectively.——At a meeting of the Stark County Medical Society, Canton, January 12, Dr. Clarence H. Heyman, Cleveland, spoke on fractures of the hip.——Dr. Julien E. Benjamin, Cincinnati, addressed the Hempstead Academy of Medicine, January 11, on "The Increase in the Death Rate from Heart Disease in the Fifth and Sixth Decades."——Drs. George T. Harding III and Donald E. Yochem made addresses on "Narcolepsy" and "Diagnosis and Treatment of Pernicious Anemia," respectively, before the Columbus Academy of Medicine, January 11.——Dr. Albert D. Frost, Columbus, discussed "Cooperation of the Oculist with the General Practitioner" at a meeting of the Ross County Medical Society, Chillicothe, January 7.——Drs. Milton B. Cohen and Roy W. Scott provided the program of the Cleveland Academy of Medicine, February 19, speaking on "Use and Abuse of Drugs in Asthma" and "Recent Advances in the Problem of Vascular Diseases," respectively.——Pediatricians of Cincinnati organized the Cincinnati Pediatric Society, January 15, with Dr. Albert J. Bell as president and Dr. Harold F. Downing, secretary.——Dr. Alfred Worcester, Waltham, Mass., addressed the Cincinnati Academy of Medicine, February 1, on "Care of the Dying."——Dr. Paul A. O'Leary, Rochester, Minn., will address the Cincinnati Dermatological Society and the specialty section of the Cincinnati Academy of Medicine, February 29, on "Therapeutic Problems of Syphilis."——Dr. James M. Pierce, Cincinnati, discussed "Nausea and Vomiting of Early Pregnancy" before the Cincinnati Obstetrical Society, February 11.——Dr. Charles Goosmann, Cincinnati, addressed the Montgomery County Medical Society, Dayton, February 5, on "Mistakes in Microscopic Diagnosis of Tumors."

PENNSYLVANIA

Society News.—Dr. Howard T. Phillips, Wheeling, W. Va., held a dermatologic clinic at the meeting of the Washington County Medical Society, Washington, February 10.——Dr. Barton C. Hirst, Philadelphia, addressed the Dauphin County Medical Society, Harrisburg, February 2, on recent studies in the causes of sterility.——Dr. Herbert F. Gross made the annual presidential address of the Harrisburg Academy of Medicine, January 19, on intestinal obstruction.——Dr. Alfred Friedlander, Cincinnati, addressed the Medical Forum of Pittsburgh, February 13, on "Clinical Applications of Recent Studies on Reticulocytes."——Dr. John J. Buchanan delivered an address on "History of Urology in Pittsburgh" at the February meeting of the Pittsburgh Urological Association.——Dr. George H. Shuman addressed an open meeting of the Pittsburgh Slit-Lamp Society, February 8, on "Controlled Versus Haphazard Methods of Applying Oblique Focal Illumination in Ocular Diagnosis."

Philadelphia

Annual Thomas Lecture.—The annual B. A. Thomas Memorial Lecture of the Philadelphia Urological Society will be delivered, February 15, by Dr. William F. Braasch, Rochester, Minn., on "Clinical Data in Connection with Polycystic Kidneys."

Bequest to University.—A bequest of $2,500,000 to the University of Pennsylvania for the erection of a hospital and an equal amount for an endowment was made public, February 2, when the will of Frederic S. Pepper, Jr., was probated. Mr. Pepper, a cousin of former Senator George Wharton Pepper, directed that the hospital be erected when the principal and accumulated income from his estate reached $5,000,000. It is to be built as a part of the University of Pennsylvania Hospital, according to the will, and will be for the "free care and treatment of sick and injured persons."

Joint Surgical Meeting.—The Philadelphia Academy of Surgery held a joint meeting with the New York Surgical Society, February 10, at the University of Pennsylvania. The following program of papers was presented: Drs. John B. Flick, "Spirochetal Infections of the Hand"; Calvin M. Smyth, Jr., "Treatment of Compound Fracture"; Eldridge L. Eliason, "An Operation for Inferior Radio-Ulnar Dislocation"; Alexander Randall, "Prevention of Postoperative Calculus in the Urinary Tract"; John Gibbon, "Kerr Technic in Anastomoses of the Colon"; George M. Dorrance, "Push-Back Operation for Cleft Palate," and John Stewart Rodman, "Chronic Cystic Mastitis or Abnormal Involution."

Society News.—The Philadelphia health department has recently discontinued its weekly bulletin, *Healthfax*, after five years of publication, for reasons of economy.——Dr. Josef B. Nylin delivered the weekly postgraduate seminar of the Philadelphia County Medical Society, February 12, on "Water as a Therapeutic Agent."——Dr. Stanley P. Reimann addressed the Pathological Society of Philadelphia, February 11, on "Neoplasms as the Result of Inheritable Chromosome Alterations" and Drs. Harold J. Stewart and Carl J. Bucher presented a paper on "Pulmonary Asbestosis."——Mr. Alexander Fleischer, secretary, Philadelphia Child Health Council, among others, addressed the Philadelphia Pediatric Society, February 9, with "A Report upon the Study of the Need for Breast Milk in Philadelphia."

SOUTH CAROLINA

Bills Introduced.—H. 1351 proposes to create a board of chiropractic examiners and to regulate the practice of chiropractic, defined as "the science of palpating and adjusting the articulation of the human spinal column by hand only." S. 1124 proposes to provide compensation to employees for disability or death resulting from injury arising out of and in the course of their employments. Compensation is not to be accorded for occupational diseases nor are injured employees to be permitted to choose their own physicians.

SOUTH DAKOTA

University News.—The medical library of the late Dr. Frank A. Swezey, Wakonda, has been presented to the University of South Dakota School of Medicine by Mrs. Swezey. It comprises several hundred volumes, pamphlets and notebooks.

Society News.—Dr. Guy E. Van Demark, Sioux Falls, addressed the Watertown District Medical Society, recently, at Watertown on "Fractures of the Upper Extremity."——At the meeting of the Sioux Falls Medical Society, Dec. 8, 1931, Drs. Sidney A. Slater, Worthington, Minn., spoke on "International Post-Graduate Tour of Europe"; Thomas J. Billion, Sioux Falls, "Treatment of Hemorrhoids," and John B. Gregg, Sioux Falls, "Foreign Bodies in the Lung."——At the annual meeting of the Yankton District Medical Society, Dec. 15, 1931, Drs. Robert H. McBride and Joseph E. Dvorak, Sioux City, Iowa, among others, spoke on "Infectious Diseases of Children."

TEXAS

Annual Clinic.—The annual Fort Worth Medical and Surgical Clinic of the Tarrant County Medical Society will be held, February 23, in Fort Worth, with Dr. William Paul Holbrook, Tucson, Ariz., as the guest of honor. Dr. Holbrook will make an address at the annual banquet and give a clinic on arthritis. Other clinical presentations will be on heart disease, diverticulitis, cancer, disabilities of the foot, diabetes, acute intestinal obstruction, pulmonary tuberculosis, goiter, diseases of the eye, ear, nose and throat, and modern laboratory methods.

WEST VIRGINIA

Physician Sentenced.—Dr. Latta Arthur Crandell, formerly of Tioga, was recently sentenced to two years and six months in the United States Penitentiary Annex, Fort Leavenworth, Kansas, and committed, January 13. He pleaded guilty to a narcotic charge.

Society News.—Dr. William Wayne Babcock, Philadelphia, addressed the Ohio County Medical Society, Wheeling, February 5, on "Newer Methods in the Surgical Treatment of Certain Diseases of the Heart and Great Blood Vessels."——Dr. William C. D. McCuskey, Wheeling, addressed the Marshall County Medical Association, January 12, on "Management of Prostatic Obstruction."——Drs. Dorsey Brannan, Morgantown, and Reginald S. Rilling, Pursglove, addressed the

Monongalia County Medical Society, Morgantown, January 5, on the Aschheim-Zondek test for pregnancy and uterine hemorrhage, respectively.——Drs. Vincent T. Churchman and Walter W. Point, Charleston, addressed the Logan County Medical Society, Logan, January 20, on "Industrial Eye Injuries" and "The Average Normal Case in Obstetrics," respectively.——Speakers at the January meeting of the Mingo County Medical Society, Williamson, were Drs. Ray M. Bobbitt and Francis A. Scott, Huntington, on "Urological Symptoms" and "Derangements of the Knee Joints," respectively.——The Mercer County Medical Society held a symposium on pernicious anemia at its meeting in Bluefield, January 21.——The Kanawha County medical and dental societies held a joint meeting in Charleston, January 5.——Drs. Clint W. Stallard, Montgomery, and Joseph M. Spinks, Mount Hope, addressed the Fayette County Medical Society, Oak Hill, January 12, on "Purulent Arthritis" and "Treatment of Incomplete Abortion," respectively.

GENERAL

American Board of Obstetrics and Gynecology.—A written examination of the American Board of Obstetrics and Gynecology will be held in nineteen cities of the United States and Canada, March 26. An oral and clinical examination is scheduled, May 10, in New Orleans. Further information may be had from the secretary, Dr. Paul Titus, 1015 Highland Building, Pittsburgh.

Scholarship in Health Education.—The National Tuberculosis Association announces that a scholarship of $500 is available in the field of health education in the department of biology and public health at Massachusetts Institute of Technology, Boston. Applicants should have basic training in mathematics, physics, chemistry and biology. Awards will be based on the nature and quality of the previous academic work of the applicant, personality qualifications and need of the financial aid. Applications should be sent before May 15 to the Child Education Service, National Tuberculosis Association, 450 Seventh Avenue, New York. The scholarship will be awarded in June.

Warning Against Impostor.—It has been reported that a man who gives his name as "Dr. Phares" of Evansville, Ind., has recently been hitch-hiking in the Southwest, representing that he is trying to find a position as surgeon, and soliciting the help and sympathy of the medical profession. On receipt of this information, inquiry was made by telephone and it was learned that Dr. John W. Phares of Evansville is regularly at his post of duty in that city, being a member of his local and state medical societies, and a Fellow of the American Medical Association. The itinerant individual, first above referred to, therefore is evidently an impostor. He is described as being 50 years of age or more, fairly well dressed and a good talker. In at least one town he is said to have visited every drug store, trying to buy paregoric. The profession should beware of impostors. In case of doubt, it would be well to telegraph or write the American Medical Association.

Prevalence of Communicable Disease.—Smallpox has been reported from various parts of the Middle West in recent newspaper dispatches. The appearance of five cases in Kalamazoo, Mich., January 16, led the health officer to order all students of the Woodward Avenue School to be vaccinated. Three virulent cases reported in a settlement near Richmond, Ky., January 15, caused the health officer to vaccinate all unprotected persons in the community. Twenty-four cases were reported at Anita, Iowa, January 2.——Twenty-three cases of measles were reported at Spring Lake, Mich., January 21.——In New York City, the health commissioner reported 1,700 cases of scarlet fever during January, with six deaths.——The weekly report of the U. S. Public Health Service for the week ended January 16 showed fewer cases of smallpox, poliomyelitis and meningococcus meningitis than for the corresponding week last year; almost the same number of cases of scarlet fever and measles, and increases in typhoid and diphtheria. In eighty-five cities there were 851 deaths from influenza and pneumonia, as compared with 1,530 for the corresponding week of 1931.

Society News.—The eleventh annual session of the American Congress of Physical Therapy will be held in New York, September 6-9.——Dr. Samuel McC. Hamill, Philadelphia, was elected president of the American Child Health Association at the annual business meeting, Dec. 10, 1931, in New York. Dr. Philip Van Ingen, New York, is secretary. President Hoover is now honorary president.——The next meeting of the Pacific Northwest Medical Association will be held in Spokane, Wash., June 27-29, with headquarters at the Davenport Hotel. The speakers will include Drs. Henry C. Bazett, Philadelphia; Samuel R. Cunningham, Oklahoma City; Harry Gideon Wells, Chicago; William J. Kerr, San Francisco; Philip H. Kreuscher, Chicago; Charles B. Wright, Minneapolis; Temple S. Fay, Philadelphia; Henry E. Michelson, Minneapolis, and Richard T. Atkins, New York.——The Catholic Hospital Association of the United States and Canada will hold its seventeenth annual convention at Villanova College, Villanova, Pa., June 21-24.——The American Orthopsychiatric Association will hold its annual meeting in Baltimore, February 18-20, with headquarters at the Lord Baltimore Hotel. A feature of the meeting will be a symposium on the contribution of psychology to the understanding of problems of personality and behavior.

Southeastern Surgical Congress.—The third annual assembly of the Southeastern Surgical Congress will be held in Birmingham, March 7-8, at the Tutwiler Hotel. The program will include addresses by Drs. William Wayne Babcock, Philadelphia, "Operative Treatment of Carcinoma of the Rectosigmoid with Methods for Elimination of Colostomy"; Edgar G. Ballenger, Atlanta, Ga., "Diagnosis of Surgical Affections of the Kidney and Ureter"; Vilray P. Blair, St. Louis, "Surgery of the Ocular Appendages and Related Structures"; Addison G. Brenizer, Charlotte, N. C., "Observations Drawn from 2,500 Thyroidectomized Cases with Special Reference to Hyperthyroidism and Hypothyroidism"; Willis C. Campbell, Memphis, Tenn., "Central or Intracapsular Fractures of the Neck of the Femur"; George W. Crile, Cleveland, "Technic and Clinical End-Results of Denervation of the Adrenal Gland"; Frank H. Hagaman, Jackson, Miss., "A Practical Treatment for Fractures of the Clavicle"; Carl A. Hedblom, Chicago, "Diagnosis and Treatment of Diaphragmatic Hernia with Special Reference to Selective Treatment"; Chevalier Jackson, Philadelphia, "Cancer of the Larynx"; C. Jeff Miller, New Orleans, "Gynecologic Backwash of Obstetrics"; Fred W. Rankin, Rochester, Minn., "Diagnosis and Treatment of Carcinoma of Rectum and Rectosigmoid"; Edwin Laurence Scott, Birmingham, "Surgical Care of Infantile Paralysis"; Walter Simpson, Dayton, Ohio, "Surgical Aspect of Undulant Fever," and George T. Tyler, Jr., Greenville, S. C., "Avertin Anesthesia." The Southeastern Surgical Congress was organized, Jan. 7, 1930. The territory covered includes Alabama, Florida, Georgia, Mississippi, North and South Carolina and Tennessee.

Ten Years of Mental Hygiene.—The results of the educational work in mental hygiene carried on in recent years are seen in a nation-wide inventory of facilities for study and management of mental disorders outside of institutions, made public by the National Committee for Mental Hygiene. In 1920, mental hygiene and child guidance clinics were comparatively rare. The study just completed shows there are 674 clinics providing regular mental health service to the public in thirty-four states. Most of these have come into existence since 1922, when the National Committee for Mental Hygiene and the Commonwealth Fund first joined forces for the development of child guidance work. Of the 674 clinics listed, 232 are child guidance clinics and the others are mental hygiene clinics handling both children and adults. More than 50,000 children and 36,000 adults were treated for behavior disorders and mental problems during the past year. The child guidance movement, the report points out, has come to command a recognition peculiarly its own and a popularity that has placed it in the forefront of the whole mental hygiene movement. The committee believes that this expansion of mental hygiene facilities is contributing to the prevention of breakdowns necessitating admission to hospitals. A directory of these clinics compiled by the Commonwealth Fund, now in course of publication, will give complete information concerning their services and will also describe other mental hygiene activities in each state. A table showing the distribution of child guidance clinics in cities of more than 150,000 population is included in the committee's inventory. A rating was adopted on the assumption that for every 200,000 of population there should be at least one clinic having the combined full time service of a psychiatrist, psychologist and two psychiatric social workers. According to this rating, Worcester, Mass., has the largest pro rata service among the cities; it is credited with 130 per cent. San Francisco is the largest city in the United States having practically no child guidance service.

Medical Bills in Congress.—*Change of Status:* S. 1690 has been favorably reported to the Senate, with an amendment, providing medical care and hospitalization for members of the National Guard, Organized Reserves, Reserve Officers' Training Corps and citizens' military training camps who are injured or contract disease while engaged in military training. Hearings were held, February 4 and 5, by the Senate Commerce Committee, on S. 572, to provide that the United States shall cooperate with the states in promoting the general health of the rural population of the United States and the welfare and hygiene of mothers and children. *Bills Introduced:* Senator Bingham, Connecticut, has proposed an amendment to S. 3090, relating to medicinal liquor, which would permit a physician to prescribe beer for medicinal purposes. S. 3404, by Senator Broussard, Louisiana, to erect a veterans' hospital at or near New Orleans. S. 3410, by Senator Nye, North Dakota, to erect an administration building at the veterans' hospital, Fargo, N. D. H. R. 8626, by Representative Norton, New Jersey, to provide hospitalization and medical treatment at hospitals and relief stations of the United States Public Health Service for certain seamen. H. R. 8629, by Representative Overton, Louisiana, to erect a 250 bed addition to the veterans' hospital, Alexandria, La. H. R. 8680, by Representative Crail, California, to provide a uniform pension law for disabilities incurred in war service and granting pensions to certain soldiers, sailors, marines and nurses who served the United States in time of war. H. R. 8756, by Representative Connery, Massachusetts, to erect a veterans' hospital at or near Boston. H. R. 8760, by Representative Hastings, Oklahoma, to erect a 200 bed addition to the veterans' hospital, Muskogee, Okla. H. R. 8762, by Representative Hardy, Colorado, to recondition buildings at the veterans' hospital, Fort Lyon, Colorado. H. R. 8905, by Representative Fulbright, Missouri, and H. R. 8920, by Representative Johnson, Missouri, to define the term "willful conduct," as used in the World War Veterans' Act, to include only intentional self-inflicted injury or conduct engaged in for the purpose and with the intent of developing and causing injury or disease, or aggravation thereof, or causing recurrence of disease. H. R. 8921, by Representative Lichtenwalner, Pennsylvania, to erect a veterans' hospital in Lehigh County, Pennsylvania. H. R. 8924, by Representative Owen, Florida, and H. R. 7228, by Representative Reid, Illinois, to provide pension for contract surgeons.

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Trachoma Among Alberta Indians.—The provincial government has recently set forth new regulations for the control of trachoma among the Indians of Alberta. Any house in which a person suffering from trachoma is found and in which proper precautionary measures are not being used may be quarantined. If in the opinion of the board of health treatment is necessary, the board may appoint medical and nursing staffs to procure eradication of the disease from any area within the province, according to the regulations. It is said that on one reservation west of Calgary almost one fourth of the population of 600 has trachoma. In view of the fact that the Indians travel constantly through other districts, this condition is considered a serious menace.

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(From Our Regular Correspondent)

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SARCOMA AND LYMPHOSARCOMA

Good results were obtained in 50 per cent of cases of spindle cell sarcoma, in 41 per cent of round cell sarcoma and in 23.5 per cent of lymphosarcoma.

The Alcohol Problem

The royal commission appointed in January, 1930, to inquire into the working of the laws relating to the sale and supply of alcoholic liquors, to investigate the social and economic aspects of the question and to report on proposals for amending the law has presented its report, which has just been published. It constitutes a notable contribution to one of the most controversial social problems.

DECREASE OF DRINKING

A definite increase in the consumption of intoxicants occurred in the last twenty years of the nineteenth century, but the contrast between 1899 and 1929 is remarkable. In the former year the consumption of beer was 32.5 gallons a head; in the latter it had fallen to 16.4. The fall in the consumption of spirits was yet more remarkable—from 0.97 proof gallon a head to 0.25. Since the war there has been a rise in the consumption of wine, which is attributed to some extent to the increased duty on spirits, which now is five times as great as it was before the war. But it is considered that, despite the great improvement, excessive drinking still persists, and the commission is not satisfied that the situation can be sufficiently met by trusting to the general progressive tendencies of the age. It is noteworthy that of the 189 witnesses examined not one suggested that prohibition was a practicable proposition for this country. The demand was made before the commission that the inhabitants of newly developed areas should be given control of the licensing of saloons in their areas (a restricted form of what has long figured in the liquor controversy as "local option") and is favorably reported on.

The Curability Rate of Cancer

The great preponderance of cancer of the lip, tongue, mouth, pharynx and larynx in men and of the reproductive organs in women is pointed out in a report to the minister of health, by Dr. Janet E. Forber, on 2,000 hospital cases in East London. In a foreword the chief medical officer of the ministry, Sir George Newman, says: "The present report shows that if account be taken of the cases not submitted to treatment, the curability rate for all cases of cancer is about 21 per cent. These data strongly emphasize the need for educational effort *to secure that more patients in the early stage should avail* themselves of specialized treatment." In her report, Dr. Forber says that there is no shortage of medical or nursing care and that there was no delay of admission to a municipal hospital of any one who applied. There was no delay on the part of physicians in obtaining further advice and aid by referring the patients to hospital. The mean duration of inpatient care indicates that at least the final stages are seldom long, the mean duration being 2.28 months for all cases, under one month for 46 per cent, while only 7 per cent reached six months. There is some indication, contrary to the prevalent belief, that the duration is shorter in the aged.

PARIS

(From Our Regular Correspondent)

Dec. 30, 1931.

Present State of Gold Therapy in France

Gold salts continue to be employed in France for the treatment of tuberculosis, especially the stationary and slowly developing types. One proprietary preparation is widely employed in the sanatoriums, but no one longer believes that it has a specific action on the Koch bacillus or that it exerts any other influence than to reinforce in a peculiar manner the defense of the organism against attacks, and indirectly facilitate spontaneous recovery by its own means. But gold salts, in their various forms, are used likewise in the treatment of lupus erythematosus, and articles by Pinard, Jeanselme and Burnier, Pautrier and Georges Levy, and Clément Simon, have announced numerous cases of amelioration and recovery—an average of about 60 per cent. All tests of the efficacy of gold preparations in leprosy have been fruitless. The trials were unfavorable also as carried out by Sézary, who reports that the use of gold in leprosy sometimes provokes an evolutive outbreak. Jansion observed in one case a rapid cachexia followed by death. Jeanselme and Burnier found gold absolutely inactive in leprosy patients. Better results were obtained in the treatment of syphilis, an old method applied formerly in France solely to syphilitic bone lesions. Levaditi's researches on the action of "Sanocrysin" in venereal spirochetosis induced experimentally in the rabbit, and the researches of Fournier and Mollaret, and of Jeanselme and Burnier, have been so favorable that gold, in the treatment of syphilis, has acquired a place alongside arsenic and bismuth. Jeanselme reports, as the result of "Sanocrysin" treatment, rapid cures of lesions that had resisted an intensive and prolonged arsphenamine treatment. Nevertheless, according to Jeanselme, gold does not render the Wassermann test negative so consistently as do arsenic and bismuth. Jeanselme suggests that gold treatment be reserved for cases of syphilis that have proved resistant to other medicaments. The results, moreover, have much improved since, following the example of Fournier and of Mollaret, oil injections have been employed. A precise indication is furnished by the coexistence in the patients of syphilis and tuberculosis. The latter evolves rapidly since treatment with mercury, arsenic or bismuth compounds has been instituted. In Lyons, Cordier and Gate found that in such patients oral therapy dispels all the syphilitic manifestations with remarkable rapidity, the evolution of tuberculosis not having exerted any influence, unless favorable. Interesting results have been secured in France also in the treatment of recurrent fever.

The Institute of Criminology

The Institute of Criminology in Paris has announced that on April 3 it will open a comprehensive course dealing with scientific police work, under the direction of Mr. Balthazard, pro-hygiene of mothers and children. *Bills Introduced:* Senator Bingham, Connecticut, has proposed an amendment to S. 3090, relating to medicinal liquor, which would permit a physician to prescribe beer for medicinal purposes. S. 3404, by Senator Broussard, Louisiana, to erect a veterans' hospital at or near New Orleans. S. 3410, by Senator Nye, North Dakota, to erect an administration building at the veterans' hospital, Fargo, N. D. H. R. 8626, by Representative Norton, New Jersey, to provide hospitalization and medical treatment at hospitals and relief stations of the United States Public Health Service for certain seamen. H. R. 8629, by Representative Overton, Louisiana, to erect a 250 bed addition to the veterans' hospital, Alexandria, La. H. R. 8680, by Representative Crail, California, to provide a uniform pension law for disabilities incurred in war service and granting pensions to certain soldiers, sailors, marines and nurses who served the United States in time of war. H. R. 8756, by Representative Connery, Massachusetts, to erect a veterans' hospital at or near Boston. H. R. 8760, by Representative Hastings, Oklahoma, to erect a 200 bed addition to the veterans' hospital, Muskogee, Okla. H. R. 8762, by Representative Hardy, Colorado, to recondition buildings at the veterans' hospital, Fort Lyon, Colorado. H. R. 8905, by Representative Fulbright, Missouri, and H. R. 8920, by Representative Johnson, Missouri, to define the term "willful conduct," as used in the World War Veterans' Act, to include only intentional self-inflicted injury or conduct engaged in for the purpose and with the intent of developing and causing injury or disease, or aggravation thereof, or causing recurrence of disease. H. R. 8921, by Representative Lichtenwalner, Pennsylvania, to erect a veterans' hospital in Lehigh County, Pennsylvania. H. R. 8924, by Representative Owen, Florida, and H. R. 7228, by Representative Reid, Illinois, to provide pension for contract surgeons.

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The royal commission appointed in January, 1930, to inquire into the working of the laws relating to the sale and supply of alcoholic liquors, to investigate the social and economic aspects of the question and to report on proposals for amending the law has presented its report, which has just been published. It constitutes a notable contribution to one of the most controversial social problems.

DECREASE OF DRINKING

A definite increase in the consumption of intoxicants occurred in the last twenty years of the nineteenth century, but the contrast between 1899 and 1929 is remarkable. In the former year the consumption of beer was 32.5 gallons a head; in the latter it had fallen to 16.4. The fall in the consumption of spirits was yet more remarkable—from 0.97 proof gallon a head to 0.25. Since the war there has been a rise in the consumption of wine, which is attributed to some extent to the increased duty on spirits, which now is five times as great as it was before the war. But it is considered that, despite the great improvement, excessive drinking still persists, and the commission is not satisfied that the situation can be sufficiently met by trusting to the general progressive tendencies of the age. It is noteworthy that of the 189 witnesses examined not one suggested that prohibition was a practicable proposition for this country. The demand was made before the commission that the inhabitants of newly developed areas should be given control of the licensing of saloons in their areas (a restricted form of what has long figured in the liquor controversy as "local option") and is favorably reported on.

The Curability Rate of Cancer

The great preponderance of cancer of the lip, tongue, mouth, pharynx and larynx in men and of the reproductive organs in women is pointed out in a report to the minister of health, by Dr. Janet E. Forber, on 2,000 hospital cases in East London. In a foreword the chief medical officer of the ministry, Sir George Newman, says: "The present report shows that if account be taken of the cases not submitted to treatment, the curability rate for all cases of cancer is about 21 per cent. These data strongly emphasize the need for educational effort to secure that more patients in the early stage should avail themselves of specialized treatment." In her report, Dr. Forber says that there is no shortage of medical or nursing care and that there was no delay of admission to a municipal hospital of any one who applied. There was no delay on the part of physicians in obtaining further advice and aid by referring the patients to hospital. The mean duration of inpatient care indicates that at least the final stages are seldom long, the mean duration being 2.28 months for all cases, under one month for 46 per cent, while only 7 per cent reached six months. There is some indication, contrary to the prevalent belief, that the duration is shorter in the aged.

PARIS

(From Our Regular Correspondent)

Dec. 30, 1931.

Present State of Gold Therapy in France

Gold salts continue to be employed in France for the treatment of tuberculosis, especially the stationary and slowly developing types. One proprietary preparation is widely employed in the sanatoriums, but no one longer believes that it has a specific action on the Koch bacillus or that it exerts any other influence than to reinforce in a peculiar manner the defense of the organism against attacks, and indirectly facilitate spontaneous recovery by its own means. But gold salts, in their various forms, are used likewise in the treatment of lupus erythematosus, and articles by Pinard, Jeanselme and Burnier, Pautrier and Georges Levy, and Clément Simon, have announced numerous cases of amelioration and recovery—an average of about 60 per cent. All tests of the efficacy of gold preparations in leprosy have been fruitless. The trials were unfavorable also as carried out by Sézary, who reports that the use of gold in leprosy sometimes provokes an evolutive outbreak. Jansion observed in one case a rapid cachexia followed by death. Jeanselme and Burnier found gold absolutely inactive in leprosy patients. Better results were obtained in the treatment of syphilis, an old method applied formerly in France solely to syphilitic bone lesions. Levaditi's researches on the action of "Sanocrysin" in venereal spirochetosis induced experimentally in the rabbit, and the researches of Fournier and Mollaret, and of Jeanselme and Burnier, have been so favorable that gold, in the treatment of syphilis, has acquired a place alongside arsenic and bismuth. Jeanselme reports, as the result of "Sanocrysin" treatment, rapid cures of lesions that had resisted an intensive and prolonged arsphenamine treatment. Nevertheless, according to Jeanselme, gold does not render the Wassermann test negative so consistently as do arsenic and bismuth. Jeanselme suggests that gold treatment be reserved for cases of syphilis that have proved resistant to other medicaments. The results, moreover, have much improved since, following the example of Fournier and of Mollaret, oil injections have been employed. A precise indication is furnished by the coexistence in the patients of syphilis and tuberculosis. The latter evolves rapidly since treatment with mercury, arsenic or bismuth compounds has been instituted. In Lyons, Cordier and Gate found that in such patients oral therapy dispels all the syphilitic manifestations with remarkable rapidity, the evolution of tuberculosis not having exerted any influence, unless favorable. Interesting results have been secured in France also in the treatment of recurrent fever.

The Institute of Criminology

The Institute of Criminology in Paris has announced that on April 3 it will open a comprehensive course dealing with scientific police work, under the direction of Mr. Balthazard, professor of legal medicine and dean of the Faculté de médecine, with the collaboration of Professor Claude, Associate Professors Piédelièvre, Duvoir and Sannié, hospital physicians Heuyer, Lévy-Valensi and Caillier, and certain high officials of the profecture of police. The course will consist of five parts: (1) legal medicine; (2) psychiatric legal medicine; (3) organization of police work; (4) legal and technical rules pertaining to judicial inquiries, and (5) evildoers and their habits and practices. This course will be restricted to persons who are enrolled at the Faculté de médecine. It is significant that many foreigners have registered for the course.

Vaccination Against Smallpox

Mr. Camus, head of the Institut vaccinal of the Academy of Medicine, has presented his annual report on the vaccinations performed in France and in the colonies, in 1930. This report is always delayed because it is necessary to work over a considerable number of documents, some of which are inadequately prepared. The year 1929, during which an epidemic of smallpox had threatened, was the occasion for vaccinations on a large scale. In 1930 there were 48,700 fewer vaccinations than in 1929. On the other hand, the revaccinations were more numerous in fifty-eight departments than in 1929. An increase of 33,721 revaccinations was noted, chiefly first revaccinations. This figure is explained in part by the increase in the birth rate for the year following the close of the war. The vaccine distributed was improved and gave more numerous positive results (takes). In the colonies, the vaccinations have been intensified in all regions. About 8,700,000 vaccinations were recorded for a population of 48,700,000. In Morocco 586,000 persons were vaccinated, and in Tunisia 759,000. In 1930 there was in all France only one case of smallpox and one case of varioloid. In recent weeks, however, there have been several cases of fatal smallpox at Tours. Morocco was apparently the source of the infection, several cases having developed at Montpellier, which goes to prove that there should be no relaxation in the matter of vaccination, even in France. In the colonies, smallpox is on the increase, in spite of the efforts of the health officers, whose task is not always an easy one (7,400 cases in 1929 as compared with 4,600 cases in 1928). In Indo-China the disease was widespread. In Morocco in 1929 there were reported 229 cases of smallpox as against 280 in 1930, and in Tunisia 61 cases in 1930 compared with 141 in 1929.

Meeting of International Association for Prevention of Blindness

The meeting of the Association internationale de prophylaxie contre la cécité was held recently in Paris under the chairmanship of Professor de Lapersonne. On the platform were observed Dr. Park Lewis, vice president of the association, representing the United States; Dr. Pantaleoni, delegate of the League of Nations; Professor Van Duyse of Belgium; Dr. Cridland, delegate from Great Britain; Professor von Grosz, Hungary; Dr. Van den Hoeve, Netherlands, together with representatives from Spain, Italy, Poland and Switzerland. Professor de Lapersonne announced the formation of new committees in the various countries. Dr. Coutela presented a paper on recent legislation and the prophylaxis of occupational eye accidents, and emphasized that this legislation does not provide adequately for the immediate treatment of the injured. Dr. Cridland, supported by Dr. Marquez (Spain), proposed that a comprehensive inquiry be made in all countries as to the most frequent causes of blindness and as to the best methods of prophylaxis. A resolution was unanimously adopted to this effect. Dr. Park Lewis delivered a lecture, illustrated by films, on certain rare types of parasitogenic cataract observed in fish. He pointed out that these observations invite more profound researches on the causes of human cataract.

BERLIN

(From Our Regular Correspondent)

Dec. 28, 1931.

Further Progress of the Lübeck Trial

In a recent letter (The Journal, January 30, p. 414), reference was made to accidents that resulted in Lübeck from the oral administration of tubercle bacilli, and to the progress of the trial being held in an effort to fix the responsibility. The taking of testimony of the experts has been practically completed. One can hardly be accused of dealing with an unsettled question if one reports on the present status of the trial; for the person who is far removed from the scene of action may lose touch with the trial, which has now lasted more than two months. The confusion is doubtless due to the fact that the apparently simple question, as to whether an unavoidable and unforeseeable accident, or negligence and a punishable technical error are involved, has been further complicated by the embarkation on discussions on the fundamental principles pertaining to tuberculosis; more particularly, to the Calmette B C G remedy. It was easy to foresee that a discussion of tuberculosis extending beyond the actual theme of the trial would lead to endless arguments.

Although eminent specialists in Lübeck explained everything that is known at present concerning the bacteriology and the epidemiology of tuberculosis, some of the participants at the trial insisted on summoning Calmette and other experts. Such a demand constituted an unjustified lack of confidence in the German experts. It is scarcely to be expected that a further clarification would result from an endless expression of opinions. The suggestion was made on the part of the general public that debates be held between the proponents and advocates of the various therapeutic methods. That would have led only to the presentation of various opinions, and every one would decide for himself which one he would approve; that is to say, the parties would have stood afterward in the same opposed relation to each other as before.

Even the opinions expressed in regard to the equipment and arrangements in the Pasteur Institute in Paris were at variance. A tuberculosis specialist among the Lübeck experts spoke disparagingly of the conditions that prevail in the institute, whereas the Berlin clinician Professor Leschke, in an article contributed to the *Medizinische Klinik*, declared: "The technic for the preparation of the vaccine was extremely precise and ingenious. It is well worth a visit to the Pasteur Institute and a study of the method, as the method is applicable to the preparation of other vaccines. The vaccine is prepared in a building especially designated for that purpose, into which none other than the B C G cultures are permitted to enter. The precautions taken go so far that the vaccine that was prepared in my presence was discarded because we had engaged in conversation while it was being prepared."

The bearing of Professor Deycke has made a deep impression. In view of the attacks of the prosecuting attorneys and the conditions that appear to be unavoidable in connection with a court procedure dealing with such questions, it was thought advisable for some one (the Berlin hygienist Professor Hahn assumed the duty) to make a statement, in the name of all the scientific experts present, in protection of the honor of Professor Deycke, to the effect that none of the experts had ever entertained the idea that Deycke had intentionally introduced virulent tubercle bacilli into the vaccine but that, on the contrary, the experts are all firmly convinced of the honorable character and veracity of Professor Deycke. The declaration was signed by Professors Abel, Bruno Lange, Ludwig Lange, Hahn, Kolle, Much, Uhlenhuth, Schurmann and Poll. Moreover, during the course of the trial, it became known, through a statement made by Deycke, that he carried out numerous experiments with tubercle bacilli on his own body. He injected into his person a pure culture of human bacilli of the Kiel strain, also human bacilli derived from a child and bacilli derived from other cultures, and made the observation that the reaction to the cultures derived from children was entirely different from the reaction to the Kiel strain. He presented several photographs in evidence of his statements.

Prof. Bruno Lange declared that transformation of the B C G vaccine into virulent tubercle bacilli was out of the question —that it was more likely that some confusion of the vaccine in the laboratory of the General Hospital had taken place. The cause of the confusion, which doubtless occurred between the end of October and the end of November, 1929, was presumably the absence of safety measures in connection with the vaccination in Lübeck. How the confusion arose cannot be established with certainty.

Geheimrat Abel of Jena, who was the last to give expert testimony, declared that he, in contradistinction to Professor Lange, was absolutely convinced, in accordance with the researches of Uhlenhuth, Seiffert, Much and others, that the affirmative assertion of Petroff with regard to the possibility of the B C G vaccine being split into virulent and avirulent bacilli is correct. In spite of the possibility of such a transformation, Abel gave his opinion that the greater probability pointed to a confusion in Lübeck, since it would be a remarkable coincidence if precisely in Lübeck such a destructive transformation of the B C G vaccine occurred and in no other place in the whole world. A further argument against such an assumption is the fact that sister cultures of the original culture sent to Lübeck had been used for the vaccination of thousands of children in France and Riga, without any transformation taking place.

These in part contradictory statements of the experts are cited only as an example. The opinions of the other experts were in part mutually corroborative and in part mutually destructive. Persons who are fully acquainted with tuberculosis research will not be surprised by the contradictory character of the testimony of the experts in regard to a spontaneous increase in the virulence of the cultures, the possibility of reversion from the avirulent to the virulent type, the harmlessness of the B C G vaccine, the significance of the culture mediums, or the employment of living bacilli. These questions are being constantly discussed in professional circles. They were likewise discussed in detail in Lübeck. But there is only an indirect connection between these questions and the real matter involved in the trial, which is concerned solely with the special arrangements in Lübeck and what occurred there.

A few weeks more will bring us to the fiftieth anniversary of Robert Koch's discovery of the tubercle bacillus. And although, in the course of this half century, the most eminent bacteriologists, hygienists and clinicians have devoted their lives to research on tuberculosis, there are still important differences of opinion with regard to the treatment. In fact, it is difficult to judge of the efficacy of a given form of treatment in any disease, and that is particularly true of tuberculosis. These facts serve to explain what may appear to be an unusual conflict of opinion in Lübeck. How the trial will end, no one can foresee, but when the final decision is reached, a report will be rendered here.

The Hygiene of Postage Stamps

Prof. F. W. Bach, the director of the Staatliches Medizinaluntersuchungsamt in Stade (Hanover), has carried out hygienobacteriologic researches on postage stamps. Postage stamps as they come from the press are practically germ free; but stamps bought in small amounts at the window have many more germs, some of which resemble Bacillus coli and others the streptococcus. The transmission of disease through postage stamps is not to be excluded, since disease germs may remain viable for several weeks; but such contamination need not be especially feared, particularly if the stamps are not moistened with the tongue. Nor are stamp collections especially dangerous, although it is not true that the benzine employed has any marked disinfecting action. In actual practice, in spite of widespread violation of hygienic rules in the handling of postage stamps, few evidences of infection have been observed.

BUENOS AIRES

(From Our Regular Correspondent)

Dec. 1, 1931.

Relationship Between the Hypophysis and the Thyroid

Professor Houssay and Drs. Magdalena, Biasotti and Mazzocco recently carried out experiments on the dog to find out the relationship of the hypophysis and the thyroid. They presented before the Sociedad Argentina de Biología of Buenos Aires a series of lectures on the results of their experiments. The removal of the thyroid produces hypertrophy of the hypophysis. The injection of the extract of the anterior lobe of the hypophysis causes hypertrophy and hyperfunction of the thyroid. The removal of the hypophysis is followed by the appearance of a typical change in the thyroid. The weight of the thyroid varied in the different groups of dogs used (dogs deprived entirely of the hypophysis and, as control, dogs in which a lesion of the tuber cinereum had been produced and dogs which were deprived either of the anterior or of the posterior lobes of the hypophysis). It was found that the thyroid of dogs entirely deprived of the hypophysis was the least heavy. Puppies deprived of the hypophysis show a retarded development of the thyroid. During the first days following either the complete removal of the hypophysis or a lesion on the tuber cinereum, the thyroid enters a phase of hyperactivity. Areas of colloid resorption with a pale aspect appear on the thyroid, and its follicular epithelium is very abundant. In dogs entirely deprived of the hypophysis the phase of hyperfunction of the thyroid is followed by hypofunction of the thyroid and atrophy of its epithelium. The fact that this type of atrophy does not occur either in dogs with a lesion of the tuber cinereum or in dogs that were subjected to ablation of the posterior lobe of the hypophysis shows that it is caused by insufficiency of the glandular portion of the hypophysis. During the first few days following the removal of the hypophysis the iodine content of the blood increases remarkably up to the forty-fifth or the sixtieth day, when it begins to diminish again until it reaches normal figures or slightly below. The iodine content of the thyroid gland of hypophysectomized dogs, calculated on 100 Gm. of the fresh thyroid gland, is lower than normal during the first thirty days following hypophysectomy; then it increases to figures higher than normal at the same time that the atrophy of the thyroid epithelium occurs. Subtotal thyroidectomy, when performed in dogs with a lesion of the tuber cinereum or in dogs deprived of the anterior lobe of the hypophysis, is followed by the appearance of a compensatory hypertrophy in the remaining part of the thyroid, with abundant production of follicular epithelium. This type of hypertrophy does not occur, however, when subtotal thyroidectomy is performed in hypophysectomized dogs. The speakers, having as grounds the results of their experiments, state that the hypophysis has a constant regulating action on the thyroid by which its normal anatomic functional condition is maintained. After hypophysectomy the thyroid gland enters a transient phase of histologic activity at the same time that the iodine content of the blood increases and the iodine content of the thyroid gland diminishes. The histologic hyperactivity of the thyroid during this phase is not a specific result of hypophysectomy, since it is also observed in dogs with lesions of the tuber cinereum. Later on, the thyroidal activity changes into a permanent phase of hypothyroidism with cessation of the histologic functions of the thyroid. During this period the iodine content of the thyroid increases, the iodine content of the blood diminishes, the basal metabolism is low (16 per cent lower than in control dogs), and a prolonged aqueous diuresis appears. The symptoms corresponding to this period are specifically caused by the absence of the anterior lobe of the hypophysis removed at total hypophysectomy. Hypothyroidism is directly caused by insufficiency of the hypophysis.

Congress of Surgery

The third annual congress of surgery of Argentina met, Oct. 12, 1931, at the Facultad de Ciencias Médicas of Buenos Aires, under the chairmanship of Professor Romagosa of Cordoba. Members of the medical faculties of several universities of Argentina attended the congress. There was an exposition of surgical apparatus. The topics discussed were "Complications and Results in the Treatment of Fibromyoma of the Uterus," by Drs. S. Marino and A. J. Bengolea; "Treatment of Fractures of the Forearm," by Drs. A. F. Landivas and M. Ruiz Moreno, and "Cancer of the Large Intestine, Not Including Cancer of the Rectum," by Drs. O. Copello and A. Ceballos.

Meeting of Regional Pathologists

The seventh meeting of the Sociedad Argentina de Patología Regional del Norte was held recently in Tucumán, with a large attendance of local and foreign physicians. The meeting was organized by Dr. S. Mazza, head of the Misión Universitaria de Patología del Norte, with headquarters and laboratories at Jujuy. Professor Nicolle of Tunis spoke on the transmission of exanthematous typhus by rats in Mexico, Dr. Catanei of Tunis on blastomycosis, and Dr. J. A. Domínguez on the progress in medicine made by the natives of Central and South America before the Spanish conquest. Drs. Bonorino Udaondo and Maissa discussed radiologic diagnosis and treatment of diseases of the liver and spleen; Drs. Talice and Mackinnon of Montevideo, mycosis of the external ear; Drs. Mazza and Palamedi of Buenos Aires, Pinto of Rio de Janeiro, and Theodor of Jerusalem, diseases caused by Coccidioides; Dr. Mello of Nova Goa, diarrhea caused by Flagellata; Drs. Delamare and Gatti of Asunción, the presence of spirochetes in the pleural fluid; Drs. Mazza and Alvarado, radiology of the colon in dysentery; Drs. Mazza and Villagrán, mycetoma of the foot, and Drs. Niño and Vera y Vivoli, several types of mycosis. One of the speakers said that the negativity of native Mataco Indians to the Dick test points to their being immune to scarlet fever. Dr. Villagrán described the characteristics of a special type of dermatosis caused by the Urundel tree. Drs. Luna and Canal Feijóo of Santiago reported a case of autochthonous Brucella infection in Santiago. Dr. Mazza described his experiments of serial transmission of Trypanosoma cruzi into an armadillo. Dr. Romaña isolated the same organism from a weasel of the genus Didelphis paraguayensis and from a tatou. Several articles were presented on Trypanosoma infection in monkeys, birds, and also in some species of Andean rodents. Speaking on the treatment of malaria, Drs. Alvarado and Mazza advocated the use of plasmochin.

News of the Academy

The Academia de Medicina of Buenos Aires recently held a meeting in memory of the late Dr. E. Cantón. Drs. Marotta and Jorge were recently appointed professors of surgery of the Academia de Medicina of Buenos Aires to fill vacancies left by the late Prof. E. Cantón and by Dr. A. Gandolfo.

Drs. A. Navarro and L. Morquio of Montevideo were recently appointed honorary academicians of the Academia de Medicina of Buenos Aires.

Deaths

Dr. J. Llambías, director of the Instituto de Anatomía y Fisiología Patológicas of Buenos Aires, aged 62.

Dr. P. Arata, former head of the chemical laboratories of the Faculty of Medicine of Buenos Aires.

AUSTRALIA

(From Our Regular Correspondent)

Dec. 22, 1931.

Hay Fever in New Zealand

Dunedin is overshadowed by a heavy cloud of grass pollen during the late half of December and throughout January and the early half of February. Exposure of pollen plates, and a field survey made by C. E. Hercus and M. N. Watt of the department of bacteriology, University of Otago, and reported in the *New Zealand Medical Journal* for December, 1931, show that the grasses chiefly responsible are, in order of pollinating, cocksfoot, Yorkshire fog, both perennial rye and Italian rye, crested dogstail, timothy, and brown top, the latter being practically the only grass pollinating during the latter half of the aforementioned period. Prior to the peak period the only important grasses pollinating are Poa annua, Poa pratensis, twitch, and sweet vernal; the latter is extremely abundant, a profuse pollinator, but happily its period of intense pollination is relatively short, a matter of some three weeks or so. In addition to the pollens already specified, pollens of poplar, ash, broadleaf, plantago, native birch, and manuka were deposited on the plates in fair abundance.

From a study made of cutaneous reactions in 529 patients, it was found that cocksfoot is the most important grass excitant. As regards pollens other than grasses, the most frequent excitants were acacia, wattle, maize, plantago, manuka, Pinus insignis and macrocarpa. An interesting observation was that the reactivity of the skin varies according to its texture. In several cases it was found that with the same extract a moderate positive reaction on the lower aspect of the forearm became a strongly positive reaction if the more delicate skin of the upper arm was used. For strictly comparable results the skin of the lower half of the forearm should therefore be avoided.

An ascertainable family history of hypersensitiveness was present in 80 per cent of cases. Though the importance of the hereditary factor is recognized in most cases of naturally occurring hypersensitiveness in man, it is not necessarily always operative. Several cases have come under notice in which the family history had been negative and contact with an excessive concentration of the specific excitant had apparently produced hay fever.

As regards the results of treatment, the authors state that an exact evaluation of the results of any form of treatment is always a matter of great difficulty. In endeavoring to assess the value of the specific treatment of hay fever, the usual difficulties are increased by the number of variable factors peculiar to this therapy. Such factors as the correct selection of the exciting specific agent, the constancy of the strength of the therapeutic extract, the time of treatment in relation to the appearance of symptoms, and the method and size of dosage must all be duly considered. With these considerations in mind it will be at once realized that the final assessment cannot be made until a large number of cases have been carefully studied over a period of years. The results of treatment are, on the whole, most encouraging. The fact that 102 of the patients have returned for further treatment is, in itself, an important indication that the treatment is of value. Fifty per cent of these have returned during three, four and five hay fever seasons. Out of a total of 286 patients, 94, or 32 per cent, were completely free from symptoms; 146, or 51 per cent, received considerable relief, and 30, or 10 per cent, moderate relief, whereas 16, or 5 per cent, failed to derive any benefit. Constitutional reactions occurred in 91, or 31 per cent, of the cases treated. The pollen asthmas have shown a higher percentage of complete relief from symptoms than the pure hay fever cases. The treatment was entirely preseasonal by either the slow or the intensive method, or partly seasonal and partly preseasonal, or purely seasonal. One course of treatment, however successful, would not produce a permanent immunity.

Chair of Obstetrics at University of Otago

Dr. Joseph Bernard Dawson, M.D., F.R.C.S., has been appointed professor of midwifery and gynecology in the University of Otago at a salary of £2,000 per annum. The newly appointed professor is 45 years of age and of British birth and education, having received his professorial training at the University of Birmingham and at St. Bartholomew's Hospital. After graduation from the University of London, he engaged in postgraduate studies in order to obtain the higher degrees in medicine and surgery. During this time he held a number of resident appointments in the Birmingham hospitals, the Children's Hospital, Brighton, and St. Mark's Hospital, London. Besides systematic courses of lectures in midwifery and gynecology, his duties will cover the medical control and supervision of the maternity hospital and of the practical teaching of obstetrics (including antenatal and postnatal clinics and teaching), and the duties, operative and clinical, attaching to the position of gynecologist to the Dunedin Hospital, including the practical teaching in the subject of gynecology. It is the wish of the Otago University council that Dr. Dawson should, as soon as possible, spend approximately six months in visiting and in studying the methods adopted in the more important obstetric institutions in Great Britain, Ireland, the continental countries (including Holland and Denmark), the United States and Canada.

Statistics on Poisoning

As a measure of the control exercised over the distribution of poisonous substances and as an index of the suicidal tendencies of the population (six million), it is of interest to review the Australian statistics on poisoning, as revealed in the report for 1930 of the Commonwealth statistician. Suicides by solid or liquid poisons (noncorrosive) have taken a sudden leap to 192 cases, comprising 148 in males and 44 in females. These figures compare with 113 and 32, respectively, for 1929. Suicides by corrosive substances totaled 79, of which 49 cases were in males and 29 in females. This group is also higher by 9 cases than the previous year's total. Suicide by poisonous gas seems to have developed an alarming popularity. In 1927 there were only 16 cases from this cause. The following year twice as many such cases were recorded, and in 1929 there was a further increase to 37. Finally, 1930 shows a sharp rise to 58. Poisoning by food accounted for 21 deaths, as against 27 in 1929, and venomous bites and stings were responsible for 17 deaths, as compared with 14 cases in the previous year. Accidental absorption of irrespirable or poisonous gas was fatal in 25 cases (2 more than in 1929 and 14 less than in 1928). Accidental poisonings, happily, show a decline. The 1930 total of 63 deaths under this heading contrasts with 76 in 1929 and was made up of 47 males and 16 females. While there is apparently a decrease in the number of accidental poisoning cases, suicides show a marked upward tendency. There is a possible connection between these deaths and the state of trade and industry. The ages of suicides ranged between 15 and 80 years in the case of males, and between 13 and 64 years for females. In 1929 the largest number came, both for males and for females, from those aged between 35 and 50. In 1930, however, the greatest number of male suicides occurred at ages from 35 to 60, whereas for females the ages dropped to between 18 and 24 years.

Marriages

John Lawrence Riker, New York, to Miss Helene Beaudrais of Yonkers, N. Y., January 30.

Wade Thomas Parker, Fayetteville, N. C., to Miss Elizabeth Sikes Blue, January 26.

Sydney Rosenthal to Dr. Zelda I. Marks, both of Newark, N. J., February 7.

Deaths

Burton Alexander Randall ⊕ Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1880; emeritus professor of otology at his alma mater, assistant demonstrator of histology, 1880-1882, and professor of ear diseases, 1891-1924; professor of otology at the graduate school of medicine; member of the American Laryngological Association and member and past president of the American Otological Society; eye and ear surgeon to the Episcopal Hospital, 1882-1891, Methodist Hospital, 1896-1901, and Children's Hospital, 1885-1905; joint author of "Photographic Illustrations of the Anatomy of the Ear," 1887, and "American Textbook of Diseases of the Eye, Ear, Nose and Throat," 1899; aged 73; died, January 4, of heart disease.

Howard Homer Bell ⊕ St. Louis, Mo.; University of Pennsylvania School of Medicine, Philadelphia, 1912; fellow of the American College of Physicians; formerly instructor in pathology, University of Alabama School of Medicine, Mobile, and instructor in laboratory diagnosis; at one time assistant in pathology, instructor in pathology, associate in bacteriology and associate professor of bacteriology, Washington University School of Medicine; served during the World War; aged 47; on the staff of St. John's Hospital, where he died, January 7, of internal hemorrhage, following an operation for gallstones.

Reginald R. Walker ⊕ Washington, D. C.; Georgetown University School of Medicine, Washington, 1900; professor of clinical otolaryngology at his alma mater; member of the Medical Society of Virginia and fellow of the American College of Surgeons; served during the World War; consultant in otology, rhinology and laryngology, U. S. Veterans Bureau Diagnostic Clinic; surgeon to the Tuberculosis and Episcopal Eye, Ear, Nose and Throat hospitals; chief of service, department of otolaryngology, Children's Hospital; aged 54; died, January 15, of typhoid.

Carl Donald Chapell ⊕ Flint, Mich.; Michigan College of Medicine and Surgery, Detroit, 1905; member of the Radiological Society of North America; past president of the Genesee County Medical Society; formerly county coroner; on the staffs of the Hurley Hospital, St. Joseph's Hospital and the Women's Hospital; aged 53; died, January 11, in the Graduate Hospital, Philadelphia, of carcinoma of the left antrum with metastasis to the cervical glands.

David Edward Hoag, New York; University of Maryland School of Medicine, Baltimore, 1896; member of the Medical Society of the State of New York; clinical professor of neurology, University and Bellevue Hospital Medical College and the New York Polyclinic Medical School and Hospital; served during the World War; on the staff of the Westside Hospital; aged 63; died, January 20, in the Norwegian Hospital, Brooklyn, of pneumonia.

Peter Henderson Bryce, Ottawa, Ont., Canada; University of Toronto Faculty of Medicine, 1880; L.R.C.S., L.R.C.P., Edinburgh, Scotland, 1880; past president of the American Public Health Association and formerly chief medical officer of the federal department of health and Indian affairs; aged 78; died, January 15, at sea, while on the way to the West Indies.

Roscoe C. Carnal, Orwell, N. Y.; University of Maryland School of Medicine, Baltimore, 1905; member of the Medical Society of the State of New York and the Medical Society of Virginia; aged 49; died, January 13, in the Crouse-Irving Hospital, Syracuse, of an injury received when he fell from a second floor window.

Aaron La Fayette Harlan ⊕ Alexander City, Ala.; Medical College of Alabama, Mobile, 1886; past president of the Medical Association of the State of Alabama; member of the state board of censors of Alabama; state senator and member of the city council; aged 70; died, January 5, of heart disease.

John Hoadly Berry ⊕ Athens, Ohio; University of Cincinnati College of Medicine, 1910; member of the American Psychiatric Association; past president of the Athens County Medical Society; superintendent of the Athens State Hospital; aged 48; died, January 18, in Gallipolis, following an operation for appendicitis.

Baxter Timothy Smelzer, Albany, N. Y.; Bellevue Hospital Medical College, New York, 1874; member of the Medical Society of the State of New York; formerly secretary of the state board of health and member of the state legislature; aged 79; died, January 17, of prostatic hypertrophy and myocarditis.

William Alexander Walters ⊕ Los Angeles; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1906; member of the Pacific Coast

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

AURICULAR FIBRILLATION AND USE OF DIGITALIS

To the Editor:—A white woman, aged 44, married, the mother of two children, has been apparently in good health with the exception of some slight shortness of breath on exertion. An accident occurred, consisting of falling down several steps, in consequence of which she sustained a shoulder dislocation and two fractured ribs. Simultaneously, auricular fibrillation occurred. Digitalization was immediately effected. Two weeks has already elapsed and the cardiac note has been persistently above 100, ranging from 100 to 110, despite massive doses of digitalis. Except for some slight cardiac enlargement there is no further pathologic change. There is a barely palpable mass in the right thyroid area, and I am making a diagnosis of toxic adenoma. Basal metabolism tests are not confirmative, several having been made. Chemical analysis of the blood and the Wassermann test both give negative results. What medication would you suggest to reduce the pulse? Digitalis, strangely, whether in small or in large doses, has absolutely no beneficial effect; if anything, the pulse becomes more rapid. From a medicolegal point of view, just what are the possibilities, assuming that there is insurance involved? Please omit name. M.D., New York.

Answer.—Auricular fibrillation does occasionally have its onset consequent on some traumatism, as in this case. In such cases it is always probable that there was some preexisting cardiac lesion predisposing to the fibrillation. In this case the history of shortness of breath, and the fact that there is enlargement of the heart, indicate previous cardiac damage. It is a possibility also that the fibrillation was present before the accident, without anything more in the way of symptoms than the slight shortness of breath, and that it was first discovered at the examination after the accident.

It is unusual for auricular fibrillation not to yield to the administration of digitalis. It is possible that the digitalis was below standard strength. It is possible also that the optimal dosage had been passed and that the increase in rate with increased dosage is due to an overdosage. The effects of digitalis follow a fairly regular sequence; first, but not always in the normal rhythm, a decrease in rate; then a decrease in conductivity; an increase in irritability with occasional premature ventricular contractions; with a further increase in irritability a coupled pulse consisting of a normal beat followed closely by a premature ventricular contraction; with still further increase in irritability an increase in rate, which may give an irregular pulse but tends to be regular, and then ventricular fibrillation and death. The coupled pulse is a danger signal, and the increase in rate means that the patient has had a large part of the fatal dose, sometimes 85 or 90 per cent.

With a normal metabolic rate it is improbable that the adenoma of the thyroid is of any significance.

A pulse of 100 or 110 is not in itself an indication for digitalis administration. The volume of blood delivered by the heart per minute at that rate may be greater in some cases than at a slower rate.

Graphic records should be made to determine the condition, and the reasons for the digitalis effects. (A normal mechanism with frequent premature ventricular contractions could readily be mistaken for auricular fibrillation and given a similar picture.)

Intracranial hemorrhage may give rise to obscure fever by stimulation of the heat center. It is true that this child showed a slight nystagmus, though it is difficult to ascribe this single symptom to a cerebral cause, without other confirmatory observations.

The temperature of infants is sometimes influenced by the application of external heat. This is particularly true of premature infants who are placed in heated incubators.

The last possibility is that the child might have acquired an infection, and this sometimes occurs even when the most painstaking care is bestowed on the infant and the treatment of the navel. Umbilical infection may be present without any local evidence of inflammation. When the infection enters the blood stream, fever is one of the most striking symptoms, and localization in any case obviously may occur. One would be inclined to hazard the opinion that, owing to the rapid and fatal termination in this infant, either an infection or a cerebral hemorrhage was responsible.

POSSIBLE REACTION AFTER SCARLET FEVER IMMUNIZATION

To the Editor:—During an informal conversation with a group of physicians a few days ago, the subject of giving scarlet fever toxin for the active immunization of children was brought up, and Dr. G. C. Bullington of this city stated that he had heard of two severe reactions which occurred in two children when they received their last dose. I am giving this treatment to two children and was prepared to start it with my own child. Before going any further, I wish to ask whether you consider the hazard great, as I should be much distressed should anything happen to a child whom I was treating. I am using the Dick toxin that is marketed by E. R. Squibb & Sons. Louis H. Miller, M.D., Pana, Ill.

Answer.—Severe reactions following the fifth immunizing dose of scarlet fever toxin are rare. They have occurred in cases in which through mistake the fifth dose was injected first, without the preliminary immunization conferred by the injection of the first four graduated doses, but even in these cases they have not been fatal nor have they resulted in permanent injury. In the exceptional cases in which the patient is sensitive to broth, urticaria may develop within a few minutes after the injection of either scarlet fever toxin or diphtheria toxoid. This may be prevented by injection of 0.2 cc. of a 1:1,000 solution of epinephrine hydrochloride taken up in the same syringe with the immunizing dose, or the usual dose of epinephrine hydrochloride may be given when urticaria begins to appear. General reactions accompanied by some fever, nausea and rash are more apt to occur after the first, second or third doses than after the fifth.

Corres[illegible]

THE STANDARD [illegible] CORPORATION OF [illegible]

[illegible]
this letter, but I [illegible]
warn other [illegible]
[illegible]
[illegible] gentleman [illegible]
[illegible] of the Standard [illegible]
[illegible] and saying that he [illegible]
Walker (Chief of [illegible]
[illegible]) and Dr. George M[illegible]
Medical Association [illegible]
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new doctor just [illegible]
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Walker recommended [illegible]
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the books up to date. [illegible]
[illegible] for me to sign. I [illegible]
[illegible] but was necessary in order that [illegible]
[illegible] I asked him what this [illegible]
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unconditional, not subject to cancellation [illegible]
[illegible] by any agreement not endorsed hereon" [illegible]
[illegible] the company would give me a chance to [illegible]
[illegible] before accepting my order and that if I did not accept
[illegible] offer, "it would be his hard luck" and I [illegible]
books.

Well, I am young at the business and not used to book
[illegible] and the offer seemed fair, so I signed in order to [illegible]
[illegible] of him, and gave him $5 as a provisional
[illegible] evening I got in touch with Dr. Moore
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[illegible] Moore had literally kicked him
[illegible] day. I immediately wrote
[illegible] telling them the
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not to send me the [illegible]
campaign. To my
contract for $2.50 a
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In
That
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s. Restoration of useful vision
[illegible]d in about 96 per cent of the
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[illegible]bout six weeks after operation.

[illegible]LITERATION OF DUCTS

[illegible]sible effective treatment for male
[illegible]ducts from old gonococcic infection.
M.D., Ohio.

[illegible] sterility due to an old gonor-
[illegible] diagnose ahead of time whether
[illegible] semen is due to the fact that
[illegible]ure spermatozoa or whether it
[illegible]asa which would prevent sper-
[illegible]ra because of occlusion of both

[illegible]ting a rather large hypodermic
[illegible]g some of the testicular fluid.
[illegible]ce for spermatozoa. If these
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[illegible] that can possibly afford any
[illegible]movasostomy; namely, anasto-
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[illegible]t operation at present is that
[illegible]*rology*, March, 1925, p. 377).
[illegible]efinitely informed that, while
[illegible]bsolutely no hope, the opera-
[illegible]ssful, though no harm can be
[illegible] Indeed, it may be repeated

[illegible]und in the aspirated testicular
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[illegible]genic function of the testicle.
[illegible]xamined and, if necessary, the
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[illegible]peration may be tried with some
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[illegible]her need be done, as the diagnosis
[illegible]nal azoospermia was not due to
deficient testicular action.

[illegible] WITH USE OF INSULIN

[illegible]he etiology of and treatment for a gravity
[illegible] to the use of insulin in a case of diabetes
M.D., Pennsylvania.

[illegible]uthority for the statement that "Remark-
[illegible]eight of normal individuals will . . .
[illegible]ion of fat to carbohydrate is altered.
[illegible] value of the diet remains constant."
[illegible]hydrate stored in the body demands the
[illegible] of water, while 1 Gm. of fat requires only
[illegible] therefore any condition which would improve
[illegible]age simultaneously implies water storage.
[illegible]arly by promoting storage of glycogen in liver
[illegible]d this condition also means water retention.
[illegible]odium chloride or sodium bicarbonate on edema
[illegible] well known, especially in diabetic persons.
[illegible]d edema explained on the basis of what has just
[illegible] been known to occur in diabetic patients even
[illegible]se of insulin, it is probably true that the edema
[illegible]sulin is due to improved carbohydrate utilization
[illegible] Regarding treatment, the sodium chloride intake
[illegible] analyzed to ascertain that the patient is not taking
[illegible], and if alkaline therapy is being administered it
[illegible] stopped. Sometimes the edema can be made to dis-
[illegible]y starting with small doses and gradually increasing
[illegible]lin.
[illegible]er information may be obtained in an article by I. M.
[illegible]witch (*Canad. M. A. J.* **17**:685 [June] 1927).

REACTIONS WITH DIPHTHERIA TOXOID

[illegible]o *the Editor*—One cubic centimeter of diphtheria toxoid (Lederle)
[illegible]uced a moderately severe reaction; i. e., soreness and edema of the
[illegible]upper arm. This persisted for four days. What results should be
[illegible] from a second similar injection, to be given one month following
[illegible] there any method of modifying this type of reaction? Please
M.D., New York.

[illegible]econd injection one month after the first may
[illegible]tion. Such reactions may usually be avoided
[illegible]5, 0.5, 1, and 1 cc. of diphtheria toxoid at
[illegible] instead of from three to four weeks.

Oto-Ophthalmological Society; aged 51; died, Dec. 25, 1931, in St. Vincent's Hospital, of diffuse arteriosclerosis, chronic myocarditis, chronic interstitial nephritis and pulmonary embolism.

William Ellery Briggs ⊕ Sacramento, Calif.; University of Wooster Medical Department, Cleveland, 1877; member of the American Academy of Ophthalmology and Oto-Laryngology, Pacific Coast Oto-Ophthalmological Society and Fellow of the American College of Surgeons; aged 78; died, Nov. 5, 1931, of cerebral hemorrhage.

John Wesley White, Wilkesboro, N. C.; Jefferson Medical College of Philadelphia, 1889; member of the Medical Society of the State of North Carolina; past president of the Wilkes County Medical Society; for ten years county health officer; aged 70; died, January 12, of chronic myocarditis.

John Charles Copeland, Los Angeles; Baltimore University School of Medicine, 1896; member of the Associated Anesthetists of the United States and Canada; served during the World War; aged 59; died, Dec. 31, 1931, in a hospital at San Diego, of chronic nephritis and chronic myocarditis.

Sumner C. Sackett, Fremont, Ohio; Cleveland College of Physicians and Surgeons, Medical Department Ohio Wesleyan University, 1896; member of the Ohio State Medical Association; formerly on the staff of the Community Hospital; aged 64; died, Dec. 25, 1931, of heart disease.

Preston E. Stem, Bethlehem, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1880; member of the Medical Society of the State of Pennsylvania; aged 75; formerly on the staff of St. Luke's Hospital, where he died, January 10, of bronchopneumonia.

James Edward Blaisdell, Chelsea, Mass.; Boston University School of Medicine, 1879; aged 77; on the staff of the Massachusetts Memorial Hospital, Boston, where he died, January 3, of abdominal carcinomatosis and bronchopneumonia.

Isaac E. Morris ⊕ Fort Wayne, Ind.; Hahnemann Medical College and Hospital of Philadelphia, 1902; served during the World War; on the staff of the Fort Wayne Lutheran Hospital; aged 57; died, January 2, of carbolic acid poisoning.

Zilliba L. Kirkham, Little Rock, Ark.; University of Louisville (Ky.) School of Medicine, 1895; member of the Arkansas Medical Society; aged 64; died, Dec. 29, 1931, of hypertensive heart disease and chronic interstitial nephritis.

Louis Herman Van Engelken, Ocala, Fla.; Universität München Medizinische Fakultät, Munich, Bavaria, Germany, 1878; member of the Florida Medical Association; aged 78; died, January 7, of chronic bronchitis and myocarditis.

Joseph Wright Cook, Hamadan, Persia; University of Pennsylvania School of Medicine, Philadelphia, 1910; member of the California Medical Association; since 1929 a medical missionary; aged 48; died, January 7, of typhus fever.

William Eastman Fay, Melrose, Mass.; Harvard University Medical School, Boston, 1889; member of the Massachusetts Medical Society; aged 72; died, January 15, in Santa Monica, Calif., of progressive muscular atrophy.

William Clarence Brownson, Asheville, N. C.; Medical Department of the University of the City of New York, 1878; member of the Medical Society of the State of North Carolina; aged 75; died, January 12, of Parkinson's disease.

Charles Henry Crawford, Lawrence, Mass.; Bellevue Hospital Medical College, New York, 1882; member of the Massachusetts Medical Society; aged 77; died, January 13, of hypostatic pneumonia and prostatic obstruction.

William B. Graff, Avon Lake, Ohio; Cleveland College of Physicians and Surgeons, Medical Department Ohio Wesleyan University, 1896; aged 65; died, Nov. 27, 1931, of cerebral hemorrhage, arteriosclerosis and hypertension.

Herbert Clifton Powers ⊕ Joplin, Mo.; Central Medical College of St. Joseph, 1903; past president of the Jasper County Medical Society; on the staff of St. John's Hospital; aged 51; died, Dec. 16, 1931, of angina pectoris.

Harris Ansel Canfield ⊕ Bradford, Pa.; University of Michigan Medical School, Ann Arbor, 1877; aged 79; on the staff of the Bradford Hospital, where he died, Dec. 31, 1931, of carbuncle of the back of the neck.

James Douglas Dickson, Staten Island, N. Y.; Bellevue Hospital Medical College, New York, 1887; member of the Medical Society of the State of New York; aged 69; died, January 14, of cerebral hemorrhage.

Ignatz Kaufman, Newark, N. J.; Columbia University College of Physicians and Surgeons, New York, 1906; for many years on the staff of the Beth Israel Hospital; aged 65; died, January 12, of heart disease.

Horace Adams Reaves, Jacksonville, Fla.; University of the South Medical Department, Sewanee, Tenn., 1901; member of the Florida Medical Association; aged 58; died, January 4, of a self-inflicted bullet wound.

Anson T. Abell, Mattoon, Ill.; Hospital College of Medicine, Louisville, Ky., 1895; member of the Illinois State Medical Society; aged 73; died, January 9, of chronic interstitial nephritis and arteriosclerosis.

William Nelson Menefee, Crawfordsville, Ind.; Rush Medical College, Chicago, 1895; aged 63; died, January 12, in St. Elizabeth's Hospital, Lafayette, of carcinoma of the rectum and intestinal obstruction.

Frederick Edward Becker ⊕ Denver; University of Colorado School of Medicine, Denver, 1925; assistant professor of pathology at his alma mater; aged 43; died, January 8, of influenza.

Frank Pierce Beck ⊕ Oakland, Ill.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1903; aged 61; died, January 21, of cerebral arteriosclerosis.

Arthur A. Radcliffe, Waukegan, Ill.; St. Louis Medical College, 1879; aged 77; died, January 8, in the Victory Memorial Hospital, of injuries received when he was struck by a truck.

A. Victoria Scott Haensler, San Diego, Calif.; Woman's Medical College of Pennsylvania, Philadelphia, 1875; aged 89; died, Dec. 23, 1931, of aortic insufficiency and arteriosclerosis.

Robert W. Palmer, Gulf, N. C.; Louisville (Ky.) Medical College, 1890; member of the Medical Society of the State of North Carolina; aged 69; died, January 14, of heart disease.

E. Franc Morrill, Rock Island, Ill.; Woman's Medical College, Chicago, 1891; member of the Illinois State Medical Society; aged 65; died, January 26, of Addison's disease.

Savero Pacheco Silva, Arlington, Mass.; Tufts College Medical School, Boston, 1913; aged 40; was found dead in his garage, Dec. 8, 1931, of carbon monoxide poisoning.

Early C. Lucas, Ebenezer, Miss. (licensed, Mississippi, 1886); member of the Mississippi State Medical Association; aged 70; died, January 9, of arteriosclerosis.

Daniel L. Miller ⊕ Goshen, Ind.; Medical College of Ohio, Cincinnati, 1881; on the staff of the Goshen Hospital; aged 77; died, January 10, of bronchopneumonia.

Barker Cushman Howland, New Bedford, Mass.; New York Homeopathic Medical College, 1873; aged 85; died, January 11, of heart disease and nephritis.

William McHenry Whitmore, Akron, Ohio; Hahnemann Medical College and Hospital, Chicago, 1880; aged 78; died, Dec. 1, 1931, of heart disease.

William Edward Gray ⊕ Little Rock, Ark.; University of Arkansas School of Medicine, Little Rock, 1919; aged 54; died, January 10, of carcinoma.

Russell Lindsay Robertson, Lagos, Africa; University of Illinois College of Medicine, Chicago, 1927; aged 35; died, Oct. 31, 1931, of yellow fever.

Calmar C. Owen, Chicago Heights, Ill.; Chicago Homeopathic Medical College, 1890; aged 66; died, January 3, of chronic interstitial nephritis.

Helen C. Roberts, Great Falls, Mont.; Woman's Medical College, Chicago, 1887; aged 71; died, Dec. 2, 1931, in Mondovi, Wis., of angina pectoris.

Walter Proudfoot Thomson, Toronto, Ont., Canada; Victoria University Medical Department, Coburg, 1892; aged 63; died, January 8.

Edward H. Mathers, Baltimore; Starling Medical College, Columbus, Ohio, 1892; aged 65; died, January 1, of carcinoma of the larynx.

Pleasant Hunter Mitchell, Plainview, Texas; American Medical College, St. Louis, 1896; aged 59; died, Dec. 25, 1931, of pneumonia.

Henry C. Murphy, Brooklyn; Long Island College Hospital, Brooklyn, 1882; aged 69; died, January 6, of cerebral hemorrhage.

John W. Dawson, Columbus, Ohio; Eclectic Medical Institute, Cincinnati, 1888; aged 71; died, January 11, of cerebral hemorrhage.

Benjamin R. Walker, Ekron, Ky.; Kentucky School of Medicine, Louisville, 1882; aged 74; died, Dec. 12, 1931, of cardiac asthma.

William James Hood, Avon Park, Fla.; Starling Medical College, Columbus, 1874; aged 84; died, Dec. 2, 1931, of uremia.

Correspondence

THE STANDARD ENCYCLOPEDIA CORPORATION OF CHICAGO

To the Editor:—I don't know to what department I should address this letter, but I hope it may be put to use, so that it will warn other physicians against the book-agents I am describing.

A suave gentleman introduced himself into my office as the representative of the Standard Encyclopedia Corporation of Chicago and saying that he had been sent at the request of Doctor Walker (Chief of Medical Service, Brockton City Hospital) and Dr. George Moore (Secretary of Plymouth County Medical Association). He said his company had authorized him to make a gift of some of their publications to any new doctor just starting in this district, and that Drs. Moore and Walker had advised him to select me. I attempted to get these doctors on the telephone, but they were out. I listened to the clever talker—I am sorry I did not have a dictograph to take his misrepresentations for use in court—and he claimed that he was not a salesman but an advertising agent who was presenting me with certain volumes of books, etc., on condition that after receiving and approving them, I would permit his company to use my name in a sales campaign in this district to be carried on by a crew of boys under his charge. I told him I did not need any more *medical* books. He kept adding new inducements, such as free subscription to a Research Consultation Service, and motion pictures at half price. I asked to see the books and he showed me a prospectus with articles on insulin and other medical subjects, and I understood that the volumes he offered were Standard Encyclopediae of Medicine—since, I have learned that they are not medical books at all.

Having just started to practice medicine, I needed some medical books and I thought these must be good if Drs. Moore and Walker recommended them, so I told the man he might send them on for approval. He then suggested that if I would pay $2.50 monthly until a total of $69.50 had been paid, I would be entitled to ten years' extension service, which would keep the books up to date. So saying, he presented an order blank for me to sign. I refused until he said it was not a contract but was necessary in order that the books be sent for approval. I asked him what this item on the blank meant: "It is agreed that this order, when accepted by the publisher, is unconditional, not subject to cancellation, and will not be affected by any agreement not endorsed hereon," and he replied that the company would give me a chance to approve the volumes before accepting my order and that if I did not accept their offer, "it would be his hard luck" and I need not keep the books.

Well, I am young at the business and not used to book agents and the offer seemed fair, so I signed in order to get rid of him, and gave him $5 as a provisional payment. That evening I got in touch with Dr. Moore and Dr. Walker, and they were surprised and angry and denied having sent him. Dr. Moore had literally kicked him out of his office the previous day. I immediately wrote the Chicago office of the publishers, telling them the particulars and asking them to pay no attention to the blank their agent would be sending them, and not to send me the books or use my name in their advertising campaign. To my surprise, they replied I had signed a legal contract for $2.50 a month for a total of $69.50 and the books were on the express.

I refused the express and wrote them I had signed no contract. Also, I refused to sign an enclosure which they sent and asked me to confirm and approve the original order. They have since sent me several letters reproaching me for "lack of good faith and professional honor," etc., and insist on my "obligation."

Three days ago, I received a letter from their attorney—*John E. Roche, City State Bank Building, Chicago*—whom they have instructed to take steps to enforce collection. He states the full amount of $69.50 (less $5) is due. I have never made any monthly payments. He gives me until February 4 in which to pay, otherwise he will take court action and force me to pay court costs and attorney fees, in addition. However, he offers to oblige me by accepting a partial payment now, provided I meet the remainder by making four equal monthly payments.

Of course, I am consulting a local attorney, when he returns Monday.

I suppose I was quite gullible to listen to the agent, and showed lack of business acumen in signing any paper at all. I thought the man "on the level."

I am going into the above detail in hope you will make use of it, so that other new members of the profession may be warned and that the methods of the Standard Encyclopedia Corporation of Chicago be investigated. Any advice that you may give would be appreciated—especially if of use before February 4.

Herbert J. Hulse, M.D., Rockland, Mass.

[Editorial Note.—Dr. Hulse's letter, describing his experience with the Standard Encyclopedia Corporation and their agents, came after last week's Journal, that contained an article on this subject, was in the press.]

INFLAMMATION AS A DEFENSE MECHANISM

To the Editor:—In reference to the editorial in The Journal, January 9, on "Inflammation as a Defense Mechanism," in which you review my studies on the subject, may I call your attention to certain facts in regard to your comments in the last paragraph.

With Miriam F. Menkin (*J. Exper. Med.* **51**:285 [Feb.] 1930) I have shown that the accumulation of dye from the blood stream into an inflamed area is doubtless associated with increased capillary permeability, which is part of the acute inflammatory reaction. This was shown by measuring the rate of fall of concentration of trypan blue in the blood stream as it passes out into the inflamed and normal peritoneal cavity. The rate of fall of concentration of the dye in the blood stream is about twice as great in the capillaries of the inflamed area as in those of the normal area. This indicates that the accumulation of the dye from the blood stream into inflamed tissue is most likely associated with an increased permeability of capillaries. Furthermore, in a later study (*J. Exper. Med.* **53**:647 [May] 1931) I demonstrated that capillary permeability in inflammation is increased to the extent of allowing particulate matter to pass through the endothelial wall, a condition that is not seen in the capillaries of a corresponding normal tissue area.

In brief, the accumulation of foreign substances into an inflamed area from the circulating blood stream is explained mainly by the increased capillary permeability in the acute stage of inflammation, whereas the inability of these substances to escape from the inflamed area, i. e., their fixation in situ, is primarily the result of thrombosed lymphatics and of the presence of a network of fibrin at the site of inflammation, both of which cause mechanical obstruction to the normal lymphatic drainage of such substances from the tissue spaces.

For further reference, these points have been emphasized in a recent review "An Aspect of Inflammation in Relation to Immunity" (*Arch. Path.* **12**:802 [Nov.] 1931).

Valy Menkin, M.D., Boston.

Queries and Minor Notes

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AURICULAR FIBRILLATION AND USE OF DIGITALIS

To the Editor:—A white woman, aged 44, married, the mother of two children, has been apparently in good health with the exception of some slight shortness of breath on exertion. An accident occurred, consisting of falling down several steps, in consequence of which she sustained a shoulder dislocation and two fractured ribs. Simultaneously, auricular fibrillation occurred. Digitalization was immediately effected. Two weeks has already elapsed and the cardiac note has been persistently above 100, ranging from 100 to 110, despite massive doses of digitalis. Except for some slight cardiac enlargement there is no further pathologic change. There is a barely palpable mass in the right thyroid area, and I am making a diagnosis of toxic adenoma. Basal metabolism tests are not confirmative, several having been made. Chemical analysis of the blood and the Wassermann test both give negative results. What medication would you suggest to reduce the pulse? Digitalis, strangely, whether in small or in large doses, has absolutely no beneficial effect; if anything, the pulse becomes more rapid. From a medicolegal point of view, just what are the possibilities, assuming that there is insurance involved? Please omit name.

M.D., New York.

Answer.—Auricular fibrillation does occasionally have its onset consequent on some traumatism, as in this case. In such cases it is always probable that there was some preexisting cardiac lesion predisposing to the fibrillation. In this case the history of shortness of breath, and the fact that there is enlargement of the heart, indicate previous cardiac damage. It is a possibility also that the fibrillation was present before the accident, without anything more in the way of symptoms than the slight shortness of breath, and that it was first discovered at the examination after the accident.

It is unusual for auricular fibrillation not to yield to the administration of digitalis. It is possible that the digitalis was below standard strength. It is possible also that the optimal dosage had been passed and that the increase in rate with increased dosage is due to an overdosage. The effects of digitalis follow a fairly regular sequence; first, but not always in the normal rhythm, a decrease in rate; then a decrease in conductivity; an increase in irritability with occasional premature ventricular contractions; with a further increase in irritability a coupled pulse consisting of a normal beat followed closely by a premature ventricular contraction; with still further increase in irritability an increase in rate, which may give an irregular pulse but tends to be regular, and then ventricular fibrillation and death. The coupled pulse is a danger signal, and the increase in rate means that the patient has had a large part of the fatal dose, sometimes 85 or 90 per cent.

With a normal metabolic rate it is improbable that the adenoma of the thyroid is of any significance.

A pulse of 100 or 110 is not in itself an indication for digitalis administration. The volume of blood delivered by the heart per minute at that rate may be greater in some cases than at a slower rate.

Graphic records should be made to determine the condition, and the reasons for the digitalis effects. (A normal mechanism with frequent premature ventricular contractions could readily be mistaken for auricular fibrillation and given a similar picture.)

CAUSES OF DEATH OF YOUNG INFANT

To the Editor:—Please give your opinion of the cause of death in the following case: November 17, I attended a woman in a normal confinement. The infant was apparently healthy and well in every respect. I visited the mother two or three days after the birth of the child, and both seemed to be in good condition. November 24, about 10 p. m., I was called to see the baby, which the parents thought did not seem "just right." The child had a rectal temperature of 105; there were no symptoms of a cold; the lungs were clear and the bowels in good condition; no cyanosis or spasms were present. A slight nystagmus was noted. The infant nursed all right and took water but died in the early morning, November 25. Please omit name.

M.D., Ohio.

Answer.—It is difficult in the absence of more detailed clinical data and a necropsy to state the cause of death. The most frequent causes of fever in the first days of life are transitory fever (thirst fever), overstimulation of the heat center, overheating and infection.

Transitory fever occurs between the second and the sixth day and is usually associated with continuous loss of weight. Children who are nursed, as this child was, and who receive sufficient water, rarely present the transitory type of fever.

Intracranial hemorrhage may give rise to obscure fever by stimulation of the heat center. It is true that this child showed a slight nystagmus, though it is difficult to ascribe this single symptom to a cerebral cause, without other confirmatory observations.

The temperature of infants is sometimes influenced by the application of external heat. This is particularly true of premature infants who are placed in heated incubators.

The last possibility is that the child might have acquired an infection, and this sometimes occurs even when the most painstaking care is bestowed on the infant and the treatment of the navel. Umbilical infection may be present without any local evidence of inflammation. When the infection enters the blood stream, fever is one of the most striking symptoms, and localization in any case obviously may occur. One would be inclined to hazard the opinion that, owing to the rapid and fatal termination in this infant, either an infection or a cerebral hemorrhage was responsible.

POSSIBLE REACTION AFTER SCARLET FEVER IMMUNIZATION

To the Editor:—During an informal conversation with a group of physicians a few days ago, the subject of giving scarlet fever toxin for the active immunization of children was brought up, and Dr. G. C. Bullington of this city stated that he had heard of two severe reactions which occurred in two children when they received their last dose. I am giving this treatment to two children and was prepared to start it with my own child. Before going any further, I wish to ask whether you consider the hazard great, as I should be much distressed should anything happen to a child whom I was treating. I am using the Dick toxin that is marketed by E. R. Squibb & Sons.

Louis H. Miller, M.D., Pana, Ill.

Answer.—Severe reactions following the fifth immunizing dose of scarlet fever toxin are rare. They have occurred in cases in which through mistake the fifth dose was injected first, without the preliminary immunization conferred by the injection of the first four graduated doses, but even in these cases they have not been fatal nor have they resulted in permanent injury. *In the exceptional cases in which the patient is sensitive to broth,* urticaria may develop within a few minutes after the injection of either scarlet fever toxin or diphtheria toxoid. This may be prevented by injection of 0.2 cc. of a 1:1,000 solution of epinephrine hydrochloride taken up in the same syringe with the immunizing dose, or the usual dose of epinephrine hydrochloride may be given when urticaria begins to appear. General reactions accompanied by some fever, nausea and rash are more apt to occur after the first, second or third doses than after the fifth.

SENSITIVITY TO SILK OR HOUSE DUST IN ASTHMA

To the Editor:—A white man, aged 28, a silk knitter, has been troubled with asthma for the past five years. The attacks are stubborn, often lasting a week or more and reacting poorly to hypodermic injections of epinephrine. They were first ushered in by attacks of migraine, with vomiting of bile, following which the bronchial spasm would develop. After biliary drainage and administration of autogenous vaccine prepared from the recovered bile, the attacks of migraine have ceased, but the asthma still continues. The patient has been completely tested for sensitivity to pollens, epidermals, foods, and bacterial and incidental proteins, the only positive result being a strong reaction to house dust. I have been unable to give him larger doses than 5 mm. of the solution prepared from dust from his home without instituting a severe reaction. The blood calcium was established and found to be 15 mg. per hundred cubic centimeters of blood. Examination of the nose and throat gave negative results. A tonsillectomy was done after scarlet fever six years ago. Following the suggestion of Rackemann, I had prepared an autogenous vaccine from the material coughed up from the lungs during the breaking up of an attack. This has the same effect as the dust vaccine. Feeling that the size of the dose of vaccine had perhaps been increased too rapidly, I started anew, attempting to repeat the dose until there was no longer any reaction. *This too has failed, because the patient repeatedly reacts* to the same dose, even to 0.025 cc. of dust extract, and to 2½ million bacteria in the autogenous vaccine. What suggestions have you to offer as to the further treatment of this case? Would you suggest calcium therapy, even though the blood calcium is high? In regard to calcium therapy, I have been led to believe that in cases of asthma and hay fever one may expect a lowered blood calcium. In another patient I found a blood calcium of 26.5 mg. per hundred cubic centimeters without any previous calcium therapy. This patient also had asthma. I am unable to find anything in my books *along these lines. Are the cases mentioned* instances of disturbed calcium metabolism? What is to be done in such cases? Please omit name and address.

M.D., Pennsylvania.

Answer.—The occupation of silk knitter suggests the possibility of silk as an exciting factor. Has this been *investigated* thoroughly? Is the patient better when away from his work? Are skin tests, cutaneous and intracutaneous, negative for silk? *If these are negative, a contact or patch test should be tried.* Some of the silk handled by the patient should be moistened with water and applied on a piece of gauze 1 inch square to a part of the back that has been cleansed with soap and water. The gauze should be covered with oiled silk, held by adhesive plaster and examined after twenty-four, forty-eight and seventy-two hours. A local dermatitis indicates a positive reaction.

If the silk can be excluded, further injections of house dust extract should be given. However, intracutaneous tests of 0.02 cc. each should be tried before the treatment is started; dilutions of 1:10, 1:100, 1:1,000 or even greater dilutions should be used, together with the undiluted extract; the dilution that just fails to give a reaction should be the one to be used; this will rarely cause any symptoms. These tests should be controlled by a test with physiologic solution of sodium chloride. The dose is gradually increased up to 1 cc.; the next higher dilutions are then used, in order, until, finally, undiluted extract can be given; it is an unusual individual who cannot eventually tolerate 1 cc. The blood calcium in asthma is probably not important. The earlier work showing low blood calcium has been disproved. Furthermore, giving calcium to asthma patients is rarely helpful.

TREATMENT OF COMPLICATED DIABETES

To the Editor:—I have under my care a woman, aged 65, suffering from diabetes complicated by a moderate arteriosclerosis and hypertension (150/90). She receives 20 units of U 40 daily. The urine is negative for sugar but shows many finely and coarsely granular casts with heavy traces of albumin. Chemical analysis of the blood gives negative results except for sugar, which is 285. The patient has a cataract of the left eye, completely obscuring her vision, and changes in the right retina due to the aforementioned conditions. She complains of dizziness as soon as she lies down, besides a constant noise in her head. 1. Is this dizziness due to the hyperglycemia, or is it in any way associated with the ocular condition? 2. Is there much risk in operating on a cataract in this case, the patient having had the diabetic conditions for five years and having been on insulin all this time? 3. Has it yet been determined whether this high blood sugar has any particular significance when the urine is negative for sugar? 4. What medication, if any, is indicated besides sedatives for the dizziness? 5 Is there any preparation that may be given orally that seems to benefit diabetes? If so, can it be given to replace insulin or used in conjunction with insulin? Please omit name.

M.D., New Jersey.

ANSWER.—1. It is doubtful whether hyperglycemia in itself produces dizziness. It must be recalled that this patient has arteriosclerosis, hypertension and signs of renal disease. The dizziness may be due to cerebral arteriosclerosis, or the ocular condition may have something to do with it. However, the fact that the dizziness bears a relation to position suggests an arterial basis.

2. A cataract operation should be practically without risk in this patient.

3. There is considerable doubt today as to the significance of such a blood sugar in an older patient with evidences of arterial and renal disease. Some authorities find a constantly high blood sugar in these old patients and do not pay a great deal of attention to it, as they consider that it may be due to a rise in the renal threshold. For this reason, and also because it has been shown that insulin is not entirely free from the danger of producing heart damage in such patients, some of the more recent investigators urge considerable caution in the effort to reduce hyperglycemia.

4. Potassium iodide, either alone or in combination with bromides, may be of considerable value.

5. No preparations given orally are of proved value in the treatment of diabetes. Synthalin, which has been given the most extensive trial, does seem to be beneficial in an occasional case, but Synthalin is far from being nontoxic and in some patients it produces liver damage. It seems best at present to use insulin and nothing else.

IRIDECTOMY IN CATARACT EXTRACTION

To the Editor:—A man, aged 60, in good physical condition except for early manifestations of paralysis agitans, contemplates surgical removal of senile cataract, unilateral. The patient's tonsils and teeth have been removed, and no focal infections are apparent. Is it advisable to have the iridectomy performed some time before the cataract is removed? If so, why, and what period usually is permitted to intervene between the operations? What is the prognosis so far as vision is concerned following the removal of the cataract, and what length of time is usually required after the operation before glasses may be fitted? Please omit name.

M.D., Ohio.

ANSWER.—The pros and cons in the question of preliminary iridectomy before cataract extraction cannot be discussed in the short space allotted to answers, and in a question of this type it is far better to rely implicitly on the operator and his experience in this matter. The more modern ophthalmologists no longer perform complete iridectomy in cataract extraction, thus eliminating the question entirely. When it is deemed advisable, the preliminary iridectomy usually precedes the cataract extraction by from four to eight weeks. Restoration of useful vision by cataract extraction is attained in about 96 per cent of the cases, provided the macular retina is somewhere near normal. Glasses are usually prescribed about six weeks after operation.

STERILITY DUE TO OBLITERATION OF DUCTS

To the Editor:—Kindly give possible effective treatment for male sterility due to obliteration of the ducts from old gonococcic infection. Please omit name.

M.D., Ohio.

ANSWER.—In the treatment of sterility due to an old gonorrheal infection, it is essential to diagnose ahead of time whether the absence of spermatozoa in the semen is due to the fact that the testicles no longer manufacture spermatozoa or whether it is due to an occlusion of both vasa which would prevent spermatozoa from entering the urethra because of occlusion of both vasa.

The diagnosis is made by inserting a rather large hypodermic needle into the testicle, aspirating some of the testicular fluid, and examining this fluid at once for spermatozoa. If these are found, the azoospermia is due to obstruction in the vas. In this case the only treatment that can possibly afford any relief is the operation of epididymovasostomy; namely, anastomosing the unoccluded part of the vas with another portion of the epididymis. Perhaps the best operation at present is that devised by Hagner (*Journal of Urology*, March, 1925, p. 377). The patient must, however, be definitely informed that, while without such operation there is absolutely no hope, the operation itself is only at times successful, though no harm can be done even if it does not succeed. Indeed, it may be repeated if unsuccessful the first time.

In case no spermatozoa are found in the aspirated testicular fluid, the operation is not indicated. One may administer extract of the anterior lobe of the pituitary gland, which at times brings back the spermatogenic function of the testicle. Later, condom specimens are examined and, if necessary, the testicle is again aspirated; if spermatozoa are found in the aspirated testicular fluid, the operation may be tried with some hopes of success. Of course, if spermatozoa are found in the condom specimen, nothing further need be done, as the diagnosis is established that the original azoospermia was not due to occlusion of the tubes but to deficient testicular action.

GRAVITY EDEMA WITH USE OF INSULIN

To the Editor:—What is the etiology of and treatment for a gravity edema that is apparently due to the use of insulin in a case of diabetes mellitus? Please omit name.

M.D., Pennsylvania.

ANSWER.—Joslin is authority for the statement that "Remarkable changes in the weight of normal individuals will . . . occur if the proportion of fat to carbohydrate is altered, although the caloric value of the diet remains constant." One gram of carbohydrate stored in the body demands the retention of 3 Gm. of water, while 1 Gm. of fat requires only 0.1 Gm. of water; therefore any condition which would improve carbohydrate storage simultaneously implies water storage. Insulin acts similarly by promoting storage of glycogen in liver and muscles, and this condition also means water retention. The effects of sodium chloride or sodium bicarbonate on edema and weight are well known, especially in diabetic persons.

Since marked edema explained on the basis of what has just been said has been known to occur in diabetic patients even before the use of insulin, it is probably true that the edema following insulin is due to improved carbohydrate utilization and storage. Regarding treatment, the sodium chloride intake should be analyzed to ascertain that the patient is not taking too much, and if alkaline therapy is being administered it should be stopped. Sometimes the edema can be made to disappear by starting with small doses and gradually increasing the insulin.

Further information may be obtained in an article by I. M. Rabinowitch (*Canad. M. A. J.* **17**:685 [June] 1927).

REACTIONS WITH DIPHTHERIA TOXOID

To the Editor.—One cubic centimeter of diphtheria toxoid (Lederle) produced a moderately severe reaction; i. e., soreness and edema of the entire upper arm. This persisted for four days. What results should be expected from a second similar injection, to be given one month following the first? Is there any method of modifying this type of reaction? Please omit name.

M.D., New York.

ANSWER.—A second injection one month after the first may cause a similar reaction. Such reactions may usually be avoided by injecting 0.1, 0.25, 0.5, 1, and 1 cc. of diphtheria toxoid at intervals of one week instead of from three to four weeks.

Council on Medical Education and Hospitals

COMING EXAMINATIONS

Alaska: Juneau, March 1. Sec., Dr. Harry C. DeVighne, Juneau.

American Board of Obstetrics and Gynecology: Written examinations will be held in nineteen cities of the United States and Canada, March 26. The general, oral and clinical examination will be held in New Orleans, May 10. Sec., Dr. Paul Titus, 1015 Highland Building, Pittsburgh.

California: *Reciprocity.* Los Angeles and San Francisco, March 16. Sec., Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento.

Connecticut: *Homeopathic.* New Haven, March 8. Sec., Dr. Edwin C. M. Hall, 82 Grand Avenue, New Haven. *Regular.* Hartford, March 8-9. *Endorsement.* March 22. Sec., Dr. Thomas P. Murdock, 147 W. Main St., Meriden.

Maine: Portland, March 8-9. Sec., Dr. Adam P. Leighton, Jr., 192 State St , Portland.

Massachusetts: Boston, March 8-10. Sec., Dr. Stephen Rushmore, 144 State House, Boston.

National Board of Medical Examiners: Examinations will be held in cities where there are five or more candidates, Feb. 24-26. Ex. Sec., Mr. Everett S. Elwood, 225 South Fifteenth St., Philadelphia.

New Hampshire: Concord, March 10-11. Sec., Dr. Charles Duncan, Concord.

Oklahoma: Oklahoma City, March 8-9. Sec., Dr. J. M. Byrum, Shawnee.

Porto Rico: San Juan, March 1. Sec., Dr. A. Ortiz Romeu, Diaz Garcia Clinic, San Juan.

West Virginia: Charleston, March 22. Sec., Dr. W. T. Henshaw, Charleston.

Arkansas May Examination

Dr. Samuel J. Allbright, secretary, State Medical Board of the Arkansas Medical Society, reports the written examination held at Little Rock, May 12-13, 1931. The examination covered 12 subjects and included 120 questions. An average of 75 per cent was required to pass. Twenty-seven candidates were examined, all of whom passed. The following college was represented:

PASSED		
College	Year Grad.	Per Cent
University of Arkansas School of Medicine	(1931)	80, 80.4, 80.6, 80.8, 81.1, 81.4, 82.3, 82.4, 82.7, 83, 83.2, 83.8, 83.9, 83.9, 83.9, 84.4, 85, 85.2, 85.3, 85.4, 85.5, 85.7, 86.3, 86.8, 87.8, 88.3, 89.3

Kentucky Reciprocity Report

Dr. A. T. McCormack, secretary, Kentucky State Board of Health, reports 13 physicians licensed by reciprocity with other states and one physician licensed by endorsement of credentials from Aug. 10 to Dec. 28, 1931. The following colleges were represented:

LICENSED BY RECIPROCITY		
College	Year Grad.	Reciprocity with
University of Arkansas School of Medicine	(1931)	Arkansas
Indiana University School of Medicine	*(1927)*	Indiana
University of Louisville School of Medicine	(1929)	California
University of Maryland School of Medicine and College of Physicians and Surgeons	(1930)	Maryland
Harvard University Medical School	(1923)	California
Eclectic Medical College, Cincinnati	(1928)	Ohio
Ohio State University College of Medicine	(1928)	Ohio
University of Cincinnati Coll of Med.	(1929), (1930), (1931)	Ohio
Meharry Medical College	(1930)	Tennessee
University of Tennessee College of Med.	(1929), (1931)	Tennessee

LICENSED BY ENDORSEMENT		
College	Year Grad.	Endorsement of
Washington University School of Medicine	(1930)	N. B. M. Ex.

Alabama Reciprocity Report

Dr. J. N. Baker, secretary, Alabama State Board of Medical Examiners, reports 5 physicians licensed by reciprocity with *other states and one physician licensed by endorsement of credentials* from Sept. 10 to Dec. 15, 1931. The following colleges were represented:

LICENSED BY RECIPROCITY		
College	Year Grad.	Reciprocity with
Emory University School of Medicine	(1930)	Georgia
Graduate School of Medicine of the Division of Biological Sciences, University of Chicago	(1930)	Illinois
Tulane University of Louisiana School of Medicine	(1930)	Louisiana
Washington University School of Medicine	(1926)	Ohio
University of Virginia Department of Medicine	*(1926)*	*Virginia*

LICENSED BY ENDORSEMENT		
College	Year Grad.	Endorsement of
Johns Hopkins University School of Medicine	(1928)	N. B. M. Ex.

Medical Economics

THE PHYSICIAN'S INCOME TAX—1932

The taxpayer who is required to make a return must do so on or before March 15, unless an extension of time for filing the return has been granted. For cause shown, the collector of internal revenue for the district in which the taxpayer files his return may grant such an extension, on application filed with him by the taxpayer. This application must contain a full recital of the causes for the delay. Failure to make a return may subject the taxpayer to a penalty of 25 per cent of the amount of the tax due.

The normal rate of tax on individual citizens or residents of the United States, under the Revenue Act of 1928, is 1.5 per cent on the first $4,000·of net income in excess of the exemptions and credits, 3 per cent on the next $4,000, and 5 per cent on the remainder.

WHO MUST FILE RETURNS

1. Returns must be filed by every person having a *gross* income of $5,000 or more, regardless of the amount of his net income or his marital status. If the aggregate gross income of husband and wife, living together, was $5,000 or more, they must file a joint return or separate returns, regardless of the amounts of their joint or individual net incomes.

2. If *gross* income was less than $5,000, returns must be filed (*a*) by every unmarried person, and by every person married but not living with husband or wife, whose *net* income was $1,500 or more, and (*b*) by every married person, living with husband or wife, whose *net* income was $3,500 or more. If the aggregate net income of husband and wife, living together, was $3,500 or more, each may make a return or both unite in a joint return.

If the marital status of a taxpayer changed during the tax year, the amount of income necessary to bring him within the class required to make returns should be ascertained by inquiry of the local collector of internal revenue.

As a *matter of courtesy only, blanks for returns are sent* to taxpayers by the collectors of internal revenue, without request. Failure to receive a blank does not excuse any one from making a return; the taxpayer should obtain one from the local collector of internal revenue.

The following discussion covers matters relating specifically to the physician. Full information concerning questions of *general interest may be obtained from the official return blank* or from the collectors of internal revenue.

GROSS AND NET INCOMES: WHAT THEY ARE

Gross Income.—A physician's gross income is the total amount of money received by him during the year from professional work, regardless of the time when the services were rendered for which the money was paid, plus such money as he has received as profits from investments and speculation, and as compensation and profits from other sources.

Net Income.—Certain professional expenses and the expenses of carrying on any enterprise in which the physician may be engaged for gain may be subtracted as "deductions" from the gross income, to determine the net income on which the tax *is to be paid. An "exemption"* is allowed, the amount depending on the taxpayer's marital status during the tax year, as stated before. These matters are fully covered in the instructions on the tax return blanks.

Earned Income.—In view of the credit of 25 per cent allowed on *earned* net income, the physician should state accurately the amount of such income as distinguished from his receipts from other sources. *Earned income means professional fees*, salaries and wages received as compensation for personal services rendered. From this, in the computation of the tax, must be subtracted certain "earned income deductions." The difference is the "earned net income."

A physician may include as "earned" income money paid by patients who were looked after in part by his assistants. In order to do so, however, the patients on whose account the money was paid must have been in fact the patients of the physician-taxpayer and have looked to him as responsible for the services performed. Moreover, the services must have been performed under the physician-taxpayer's supervision.

The first $5,000 of an individual's net income from all sources may be claimed, without proof, to be *earned* net income, whether it was or was not in fact *earned* within the meaning set forth in the preceding paragraph. Net income in excess of $5,000 may be claimed as *earned* if it in fact comes within that category. However, a taxpayer may not claim, as *earned*, net income in excess of $30,000.

The conditions relating to the computation of the tax on earned income are too elaborate to be stated here. In case of doubt, physicians should consult collectors of internal revenue.

DEDUCTIONS FOR PROFESSIONAL EXPENSES

A physician is entitled to deduct all current expenses necessary in carrying on his practice. The following statement shows what such deductible expenses are and how they are to be computed:

Office Rent.—Office rent is deductible. If a physician rents an office for professional purposes alone, the entire rent may be deducted. If he rents a building or apartment for use as a residence as well as for office purposes, he may deduct a part of the rental fairly proportionate to the amount of space used for professional purposes. If the physician occasionally sees a patient in his dwelling house or apartment, he may not, however, deduct any part of the rent of such house or apartment as professional expense; to entitle him to such a deduction he must have an office there, with regular office hours. If a physician owns the building in which his office is located, he cannot charge himself with "rent" and deduct the amount so charged.

Office Maintenance.—Expenditures for office maintenance, as for heating, lighting, telephone service and the services of attendants, are deductible.

Supplies.—Payments for supplies for professional use are deductible. Supplies may be fairly described as articles consumed in the using; for instance, dressings, clinical thermometers, drugs and chemicals. Professional journals may be classified as supplies, and the subscription price deducted. Amounts currently expended for books, furniture and professional instruments and equipment, "the useful life of which is short," may be deducted; but if such articles have a more or less permanent value, their purchase price is a capital expenditure and is not deductible.

Equipment.—Equipment comprises property of more or less permanent value. It may ultimately be used up, deteriorate or become obsolete, but it is not in the ordinary sense of the word "consumed in the using"; rather, it wears out.

Payments for equipment or nonexpendable property for professional use cannot be deducted. As property of this class may be named automobiles, office furniture, medical, surgical and laboratory equipment of permanent value, and instruments and appliances constituting a part of the physician's professional outfit and to be used over a considerable period of time. Books of more or less permanent value are regarded as equipment, and the purchase price is therefore not deductible.

Although payments for equipment or nonexpendable articles cannot be deducted, yet from year to year there may be charged off against them reasonable amounts as depreciation. The amounts so charged off should be sufficient only to cover the lessened value of such property through obsolescence, ordinary wear and tear, or accidental injury. If improvement to offset obsolescence and wear and tear or injury has been made, and deduction for the cost claimed elsewhere in the return, claim should not be made for depreciation.

A hard and fast rule cannot be laid down as to the amount deductible each year as depreciation. Everything depends on the nature and extent of the property and on the use to which it is put. Five per cent a year has been suggested as a fair amount for depreciation on an ordinary medical library. Depreciation on an automobile would obviously be much greater. The proper allowance for depreciation of any property is that amount which should be set aside for the tax year in accordance with a reasonably consistent plan, not necessarily at a uniform rate, whereby the aggregate of the amounts so set aside, plus the salvage value, will at the end of the useful life of the property in the business equal the purchase price of the property or, if purchased before March, 1913, its estimated value as of that date or its original cost, whichever may be the greater. The physician must in good faith use his best judgment and make such allowance for depreciation as the facts justify. Physicians who, from year to year, claim deductions for depreciation on nonexpendable property will do well to make annual inventories, as of January 1, each year.

Medical Dues.—Dues paid to societies of a strictly professional character are deductible. Dues paid to social organizations, even though their membership is limited to physicians, are personal expenses and not deductible.

Postgraduate Study.—The Commissioner of Internal Revenue holds that the expense of postgraduate study is not deductible.

Traveling Expenses.—Traveling expenses, including amounts paid for transportation, meals and lodging, necessarily incurred in professional visits to patients and in attending medical meetings for a professional purpose, are deductible.

AUTOMOBILES

Payment for an automobile is a payment for permanent equipment, and is not deductible. The cost of operation and repair, and loss through depreciation, are deductible. The cost of operation and repair includes the cost of gasoline, oil, tires, insurance, repairs, garage rental (when the garage is not owned by the physician), chauffeurs' wages, etc.

Deductible loss through depreciation is the actual diminution in value resulting from obsolescence and use, and from accidental injury against which the physician is not insured. If depreciation is computed on the basis of the average loss during a series of years, the series must extend over the entire estimated life of the car, not merely over the period in which the car is in the possession of the present taxpayer.

If the automobile is used for professional and also for personal purposes—as when used by the physician for recreation, or used by his family—only so much of the expense as arises out of the use for professional purposes may be deducted. A physician doing an exclusive office practice and using his car merely to go to and from his office cannot deduct depreciation or operating expenses; he is regarded as using his car for his personal convenience and not as a means of gaining a livelihood.

What has been said with respect to automobiles applies with equal force to horses and vehicles and the equipment incident to their use.

MISCELLANEOUS

Laboratory Expenses.—The deductibility of the expenses of establishing and maintaining laboratories is determined by the same principles that determine the deductibility of other corresponding professional expenses. Laboratory rental and the expenses of laboratory equipment and supplies and of laboratory assistants are deductible when under corresponding circumstances they would be deductible if they related to a physician's office.

Losses by Fire, etc.—Loss of and damage to a physician's equipment by fire, theft or other cause, not compensated by insurance or otherwise recoverable, may be computed as a business expense, and is deductible, provided evidence of such loss or damage can be produced. Such loss or damage is deductible, however, only to the extent to which it has not been made good by repair and the cost of repair claimed as a deduction.

Insurance Premiums.—Premiums paid for insurance against professional losses are deductible. This includes insurance against damages for alleged malpractice, against liability for injuries by a physician's automobile while in use for professional purposes, and against loss from theft of professional equipment, and damage to or loss of professional equipment by fire or otherwise. Under professional equipment is to be included any automobile belonging to the physician and used for strictly professional purposes.

Expense in Defending Malpractice Suits.—Expenses incurred in the defense of a suit for malpractice are deductible as business expense. Expenses incurred in the defense of a criminal action, however, are not deductible.

Sale of Spectacles.—Oculists who furnish spectacles, etc., may charge as income money received from such sales and deduct as an expense the cost of the article sold. Entries on the physician's account books should in such cases show charges for services separate and apart from charges for spectacles, etc.

Book Notices

Simple Lessons in Human Anatomy. By B. C. H. Harvey, M.D., Professor of Anatomy, University of Chicago. Cloth. Price, $2. Pp. 434, with 234 illustrations. Chicago: American Medical Association, 1931.

The most lamentable ignorance exists not only among the general public but even among otherwise intelligent laymen concerning the structure and functions of the human body. This is the result of an educational system in which high school students learn much concerning the structure of crayfish and earthworms but next to nothing reliable about their own bodies. As a result, the most impossible theories, the wildest affirmations paraded as "facts," and all the fallacious but well contrived crudities of quackery are accepted without reservation as true by otherwise astute men and women. Any attempt to dispel the fog of mysticism and transcendentalism that, for the layman, enshrouds the human body is most commendable. Dr. Harvey's book is a remarkably successful attempt to bridge this Grand Canyon of ignorance. It is a popular presentation of a highly technical subject. In it anatomy is removed from its unpleasant associations with the dissecting room and its odors and gruesomeness and is made to live and to have "attractiveness for the average man." In the first seven chapters the structure and functions of the various tissues are presented. Then follow eleven chapters dealing with the different systems of the body. The last two chapters are entitled "Pharmacies within the Body" and "Life History of the Body." The presentation throughout is clear, and sufficiently simple and nontechnical to be readily understood by a reader of average intelligence. Apt analogies and literary and historical allusions will stimulate interest and aid understanding. "The Human Factory," a chart presented by special arrangement with Frankh'sche Verlagshandlung of Stuttgart and presenting "pictorially a very mechanical and simple idea of some of the important engines of the human body" is in keeping with the spirit of this machine age. The illustrations are well selected and add much to the usefulness of the text. The only significant criticism to be offered is that the organs pictured in some of the illustrations are burdened with their Latin or Greek names when their English equivalents might have been used. For example, in the illustration on page 198 appear the words "Hepar" and "Ventriculus." This volume should certainly be available for collateral reading and might well be used as a textbook in high schools and normal colleges. It can be safely recommended by physicians to their patients and will be a useful addition to the literature on the tables in their waiting rooms.

Handbuch der biologischen Arbeitsmethoden. Herausgegeben von Geh. Med.-Rat Prof. Dr. Emil Abderhalden, Direktor des Physiologischen Institutes der Universität Halle a. d. Saale. Abt. V: Methoden zum Studium der Funktionen der einzelnen Organe des tierischen Organismus, Teil 8, Heft 5: Funktionen des Kreislauf- und Atmungsapparates (Ergänzung zu Abt. V. Teil 4). Lieferung 359. Tonoszillographische Blutdruckmessung und die Deutung der Blutdruckkurve. Von Johann Plesch. Paper. Price, 4.20 marks. Pp. 773-844, with 37 illustrations. Vienna: Urban & Schwarzenberg, 1931.

The author describes an instrument for recording the blood pressure, the instrument, including the recording device, being housed in an air-tight metal box. The cuff contains a thin metal layer in the outer wall so as to direct all pressure inward, toward the artery. This cuff is equipped with a metal catch, so that it fits an arm of any size snugly. The "tonoszillogram," or record, that is made depends on two components: (1) the blood pressure proper, depending on the heart's contraction, and (2) the elasticity of the artery wall. Interpretation of the recorded curve was worked out by means of experiments with rubber tubes and tubes of gold beaters' leaf. The didatic notch and Kratham's sounds are discussed. Four phases of the record are described: 1. The compression phase, in which the outer pressure is greater than the maximum pressure plus the "compression pressure," so that the artery is flat. This phase may show oscillations caused by impacts of the pulse on the cuff. 2. The phase during which the outer pressure is less than the maximum pressure plus the "compression pressure" but greater than the maximum pressure. The end of this phase is the maximum pressure. 3. The third phase, during which the outer pressure is greater than the minimum pressure but less than the minimum pressure plus the "compression pressure." This phase ends with the minimum pressure. 4. The phase during which the outer pressure is less than the minimum pressure. For reading the record, the following characteristics are noted: 1. The "total minimum pressure" is that point at which the intervals between the individual oscillations cease and where the base points begin to appear. 2. The "total maximum pressure" is at the point where the first upstrokes of the pen appear. 3. The minimum pressure is at the point at which the inertia swing of the pen disappears and the artery acts less like an elastic tube. 4. The maximum pressure is the most difficult to read. The author found, by checking with auscultation, that the distance between total minimum and minimum pressure on the record is equal to that between the total maximum and maximum pressure.

Conquering Arthritis. By H. M. Margolis, M.D. Cloth. Price, $2. Pp. 192, with illustrations. New York. Macmillan Company, 1931.

Arthritis is by no means conquered. Scientific medicine has learned something about the nature of various forms of arthritis and, through trial and error or methods based on some knowledge of causation it has learned to help considerable numbers of those who suffer with rheumatic disease. The book is divided into chapters which trace the history and the classification of arthritis, give the cycles of the disease, state the distinction between the various forms, and describe the treatment. It becomes obvious at once to the reader that no one form of treatment is applicable to all cases but that the skilful physician will combine rest, exercise, diet, drugs, biologic methods, physical methods, surgical and orthopedic treatment and changes of climate in working out a formula that will be successful for the specific patient. The book is written in a form that can be followed by any intelligent reader.

Handbuch der normalen und pathologischen Physiologie mit Berücksichtigung der experimentellen Pharmakologie. Herausgegeben von A. Bethe, G. v. Bergmann, G. Embden und A. Ellinger. Band XVI, 2, Hälfte: Correlationen II/2: Correlationen des Zirkulationssystems, Mineralstoffwechsel, Regulation des organischen Stoffwechsels, die correlativen Funktionen des autonomen Nervensystems II. Bearbeitet von L. Asher, H. Eppinger, A. Fleisch, usw. Paper. Price, 78 marks. Pp. 1163-1860, with 73 illustrations. Berlin: Julius Springer, 1931.

In the present book (which completes volume XVI) are such sections as reflexes from the skin and various interoceptors on the heart and blood vessels, the effect of temperature on the circulatory system, hormonal influences on the circulatory system, effects of psychic processes on respiration, pulse rate, blood pressure and distribution of blood, the pathology of normal circulatory correlations, mineral content of and mineral metabolism in the body, regulation of organic metabolism by means of the nervous system and hormones, and the general physiology of the correlations occurring through the autonomic nervous system. Since the preceding half of the volume contains a section on the functional pathology of the vegetative nervous system and the correlations in the body effected by the endocrine glands, a long felt want for complete bibliographic reference to the physiology of the sympathetic and parasympathetic nervous system is now available. For just this type of reference handbook, clinicians (and psychologists) have been looking for some time. Since derangements in the autonomic system often express themselves in the form of sensory disturbances, clinicians are considerably more "conscious" of this important field than are laboratory workers.

Urological Roentgenology: A Roentgen Atlas of the Genito-urinary Tract with Case Histories and an Outline of Urology in Its Relations to Roentgenology. By Hugh H. Young, M.D., Clinical Professor of Urology, Johns Hopkins University, and Charles A. Waters, M.D., Associate in Clinical Roentgenology, Johns Hopkins University. Volume VII of Annals of Roentgenology. A Series of Monographic Atlases. Edited by James T. Case, M.D., Professor of Roentgenology, Northwestern University Medical College, Chicago. Second edition. Cloth. Price, $20. Pp. 564, with 592 illustrations. New York: Paul B. Hoeber, Inc., 1931.

Any one who criticized the first edition of this splended work could hardly fail to use superlatives. The second edition is amplified to include chapters on intravenous urography and anteriography. Chapter XI is devoted to intravenous urography and briefly takes up the history of the various compounds used in attempts to produce a usable, safe preparation for intravenous administration, these efforts culminating in the synthesis of what is known in Europe as uroselectan and in the United States as iopax. The authors give credit for this preparation to Binz and Raeth, Swick of New York and von Lichtenberg, in whose clinic the first satisfactory results were obtained. Excellent halftones illustrate this chapter. A conservative, accurate evaluation of the method is given. Chapter XII, on arteriography of the aorta and its abdominal branches in urologic surgery, contains quotations from the work of dos Santos, Lamas and Caldas and reproductions of eight of their films. Young and Waters "hesitate to express an opinion at this time on the startling work by dos Santos and his confrères." They have punctured the aorta in 150 cases without untoward results. This volume will serve as an excellent reference work to both the urologist and the roentgenologist.

Nutritional Anaemia in Infancy with Special Reference to Iron Deficiency. By Helen M. M. Mackay. Assisted by Lorel Goodfellow. With a statistical appendix by A. Bradford Hill. Medical Research Council, Special Report Series, No. 157. Paper. Price, 2s. Pp. 125. London: His Majesty's Stationery Office, 1931.

Secondary anemia is one of the most common disorders found in all types of environments and in all classes of people. It seems also that secondary anemia due to nutritional deficiencies is quite common as well. Anemia in infants brings an increased susceptibility to infections and for this reason must be combated early. This report is based on investigations lasting over five years on 1,100 infants. The studies seem to indicate that nutritional anemia is a clinical entity, and its etiology and prevention are considered. For prevention and cure, it is suggested that a child be given iron and ammonium citrate. It seems possible, however, that this preparation might better be saved for treatment and that foods high in iron content be given in the infant's diet as early as possible, as a preventive measure. The attention drawn toward the subject of anemia by this investigation will aid in promoting efforts for eliminating this disorder in infancy.

The Ingenious Dr. Franklin: Selected Scientific Letters of Benjamin Franklin. Edited by Nathan G. Goodman. Cloth. Price, $3. Pp 244, with 11 illustrations. Philadelphia: University of Pennsylvania Press, 1931.

This volume contains selected letters of Benjamin Franklin on a variety of subjects, many of them of medical interest. He wrote "Rules of Health and Long Life," an essay on choosing eye glasses, several essays on swimming, one on the treatment of gout, and a discussion of the causes of colds and their nature. These, together with many others on purely electrical and physical subjects, are included in the present book, which is beautifully printed and full of interest, not only for the Franklinophile but also for every intelligent reader.

Kochbuch für Tuberkulöse. Von Frau Mimicia Herrmansdorfer und Prof. Dr. med. et phil. Adolf Herrmannsdorfer. Mit einem Geleitwort von F. Sauerbruch. Fourth edition of „Praktische Anleitung zur kochsalzfreien Ernährung Tuberkulöser." Cloth. Price, 6.75 marks. Pp. 153. Leipzig: Johann Ambrosius Barth, 1931.

This contains recipes for the salt-free treatment of tuberculosis of the lungs and, where possible, of other parts of the body. There is a foreword by Professor Sauerbruch, who warmly recommends the dietetic treatment of Herrmannsdorfer by reason of having observed its beneficent effects on a large number of patients. The authors admit that it is a most difficult task to prescribe this diet for the tuberculous patient and make him like it. They say that only those who are sufficiently enthusiastic should undertake the work; that it requires constant supervision, sympathy and attention to the many details which are a constant concomitant of tuberculosis treatment. The book goes into the preparation of meals most minutely, so that any cook and physician can serve unsalted meals to finicky patients in an appetizing form. Unfortunately for some of the recipes, the ingredients are not always obtainable without breaking the prohibition laws. There are certain salts obtainable in Germany, probably proprietary, which seem to pinch hit fairly well for salt. Spices, flavors and sauces are used freely in order to overcome the lack of desirable saline taste. In connection with the salt-free diet, the authors urge the limiting of fluids, finding that in many cases the production of sputum is favorably influenced thereby. While the menus offered by the Herrmannsdorfers are most varied, they will in many cases need some revision before they can be used on American tables. This is not to be considered as an unkind criticism.

Allergy and Applied Immunology: A Handbook for Physician and Patient, on Asthma, Hay Fever, Urticaria, Eczema, Migraine and Kindred Manifestations of Allergy. By Warren T. Vaughan, M.D. Cloth. Price, $4.50. Pp. 359, with 37 illustrations. St. Louis: C. V. Mosby Company, 1931.

The number of books on allergy multiplies merrily. This is apparently the second good book on the subject prepared for both physicians and patients. It provides a comprehensive discussion of asthma, hay fever, urticaria, eczema and migraine. It begins with a discussion of the theory of anaphylaxis and allergy, its history, and its relationship to heredity and to other diseases. A second section deals with allergens in relationship to geographic location, animals, inhalants and foods. The third section deals with diagnosis and gives suggestions as to proper study of the history of the patient. Then comes a section on therapy from the point of view of desensitization and elimination of sensitizing substances. The final sections deal with prognosis, the manifestations of allergy and the relationship of allergy to immunology.

Physicians will find the book a most valuable reference, since it avoids highly technical considerations and deals with the practical aspects of the subject. Patients of college age will be able to follow the work and to realize value from it.

Einführung in die Bakteriologie oder Lehre von den Kleinwesen und ihren Wirkungen: Zum Gebrauch bei Vorlesungen und Übungen sowie zum Selbstunterricht für Ärzte, Tierärzte und Naturforscher. Von Prof. Dr. Walther Kruse, Direktor des Hyg. Instituts der Universität Leipzig. Second edition. Paper. Price, 13.50 marks. Pp. 436, with 78 illustrations. Berlin: Walter de Gruyter & Company, 1931.

This book follows conventional lines and does not show a novel point of view. It is clearly and concisely written and contains the usual material supposed to be desirable in the education of the medical student. Here and there one notices statements that are not well substantiated, such as that in the paragraph on page 55 in which staphylococci from pus are said to be susceptible of differentiation from other staphylococci by their agglutinative qualities. On page 226 it is stated that botulism poisoning through vegetable foods is much more common in America than in Europe on account of the frequent occurrence of the spores of the botulism bacillus in North American soil. The author seems to overlook the fact that the use of canned vegetables is more general in North America. The importance of contact infection in undulant fever (page 204) does not seem to be recognized. It does not seem likely that there will be any demand for a translation of this book into English.

Medicolegal

Examining Physician as Compulsory Witness Against Person Employing Him

(Webb et al. v. Francis J. Lewald Coal Co. et al. (Calif.), 297, P. 958)

One of the plaintiffs had been examined by a physician, apparently for the purpose of enabling him to testify on behalf of her and her husband in a suit for damages for personal injuries she had sustained. At the trial, however, the plaintiffs did not produce the physician as a witness. The defendants thereupon subpenaed him. When called to the witness stand, he refused to testify concerning his examination of the plaintiff or his conclusions from it. He contended that after a physician has made an examination for one party to a suit and his conclusions do not support the contentions of that party, and when he therefore has not been produced as a witness by that party, it would be inequitable to compel him to testify in support of the contentions of the adverse party. If it were known that a physician testified under such circumstances, patients would hesitate to come to him for examination and lawyers would hesitate to send their clients to him. The trial court ruled that the witness could not be compelled to testify. Judgment was given for the plaintiffs, and thereupon the defendants appealed to the district court of appeal, first district, division 1, California, assigning as error, among other things, the refusal of the trial court to compel the physician to testify.

This ruling of the trial court, said the district court of appeal, in reversing the judgment of the trial court, constituted reversible error. However commendable from a professional standpoint may have been the objections of the witness, the policy of the law as declared by the California legislature required him to set aside his scruples and to testify concerning the matters that he had learned from his examination of the plaintiff. When the party examined by him brought suit, she impliedly waived her right to have the results of the examination kept secret, for section 1881, subdivision 4, of the California Code of Civil Procedure provides:

> A licensed physician or surgeon cannot, without the consent of his patient, be examined in a civil action as to any information acquired in attending the patient, which was necessary to enable him to prescribe or act for the patient; . . . provided, further, that where any person brings an action to recover damages for personal injuries, such action shall be deemed to constitute a consent by the person bringing such action that any physician who has prescribed for or treated said person and whose testimony is material in said action shall testify.

If the ruling of the trial court were correct, said the district court of appeal, that the witness could not be compelled to testify unless arrangements were made to compensate him as an expert witness, it would in effect nullify the provision of the law just stated; for then, all a physician need do if he desired to keep off the witness stand would be to demand such compensation for testifying as it would be impracticable for the defendant to pay. That, said the court, is not the law.

> "The authorities, however, all agree that, in the absence of an express contract to pay a physician for his testimony as an expert, he is only entitled to the statutory fee. The uniform rule seems to be that a physician who has acquired knowledge of a patient or of specific facts in connection with the patient may be called upon to testify to those facts without any compensation other than the ordinary witness receives for attendance upon court. In those states recognizing the right to extra compensation for a physician who testifies as an expert it is uniformly held that, where such testimony is sought to be elicited without requiring any particular investigation on the part of the physician, he is required to testify without extra compensation."—*McClenahan v. Keyes, 188 Calif. 574, 583, 206 P. 454, 458.*

Workmen's Compensation Acts: Aggravation of Preexisting Cancer.—An employee was awarded compensation by the Oklahoma state industrial commission on a finding that he had sustained two distinct injuries in the course of his employment, which injuries aggravated a tumor which had existed or had its onset prior to the injuries. Since the last injury, the employee had been totally disabled from the performance of manual labor. It was insisted by the employer on an appeal to the Supreme Court of Oklahoma that the commission should have found that the employee's condition and his disability were the result of a natural cause, that is, cancer. A good deal of testimony, said the court, was taken on that line from medical experts, who disagreed as to the origin of the cancer and as to whether or not an injury could create a cancer or could aggravate one already created, whether latent or growing. The cause of cancer and its cure remain almost as much a mystery today as it did half a century ago, though men have devoted their lives to its study. Considering this and further that by statute, the industrial commission is the final judge as to questions of fact, it cannot be said that the evidence submitted to the commission did not warrant the finding that the injuries complained of aggravated a latent cancer.—*Magnolia Petroleum Co. v. Mayberry (Okla.), 297 P. 260.*

"Unsoundness of Mind"—Competence of Witness.—A Washington statute (Remington's Compiled Statutes, section 1213) declares that a person of "unsound mind" is not competent to testify, but it does not define the term "unsound mind." That term, said the Supreme Court of Washington, must include only those persons who are commonly called insane; that is to say, those suffering from some derangement of the mind rendering them incapable of distinguishing right from wrong. It cannot include the mere ignorant or uneducated, or those who are incapable of receiving all of the impressions within the comprehension of those more commonly gifted. It refers to those who are without comprehension at all, not to those whose comprehension is merely limited. Where the record indicates that a witness is uneducated and may show that he was easily persuaded to commit crime, yet if it clearly shows that he understood the criminality involved in the act to which he testifies and further shows that he was capable of giving a clear statement of the facts leading up to the crime and of the manner of its commission, he is a competent witness.—*State v. Hardung (Wash.), 297 P. 167.*

Malpractice: Physician Liable Only to the Extent of Aggravation of Preexisting Injury.—Where the plaintiff in an action for damages for malpractice has been suffering from a previous disability or infirmity, says the court of civil appeals of Texas, the trial court should take care to state clearly, fully and affirmatively to the jury that the plaintiff is entitled to recover only to the extent that his infirmity was increased or aggravated by the alleged malpractice of the physician-defendant. An injured employee has the right to maintain a suit for damages for malpractice against a physician furnished by the employer if the physician's malpractice has increased or aggravated the industrial injury, even though the employee had first proceeded and obtained compensation under the workmen's compensation law.—*Pedigo & Pedigo v. Croom (Texas), 37 S. W. (2d) 1074.*

Evidence: Delusions as Affecting Testamentary Capacity.—To destroy testamentary capacity, an insane delusion must be such as directly affects the testator in the making of his will and the disposition of his property. Where the delusions under which a testator labored were such as necessarily affected an intelligent and clear comprehension of his true relationship and situation as to his children, of what he had done for them and of his moral obligations to them, and were such as affected the testator's disposing judgment, the testamentary capacity of the testator has been destroyed.—*Erickson v. Lundgren (Mo.), 37 S. W. (2d) 629.*

Life Insurance: "Good Health" of Applicant Defined.—It is competent for the parties to a life insurance contract to stipulate that the contract shall not be deemed to be complete until the delivery of the policy and that it shall not be delivered unless the applicant is at the time in good health. "Good health" as used in such a stipulation is not apparent good health, nor yet a belief of the applicant that he is in good health, but it is that he is in actual good health. Slight troubles or temporary indisposition which will not usually result in serious consequences, and which do not seriously impair or weaken his constitution, do not establish the absence of good health, but if the illness is of a serious nature such as to weaken and impair the constitution and shorten life, the applicant cannot be held to be in good health.—*Klein v. Farmers' & Bankers' Life Ins. Co. (Kan.), 297 P. 730.*

Society Proceedings

COMING MEETINGS

American Association of Anatomists, New York, March 24-26. Dr. George W. Corner, University of Rochester School of Medicine, Rochester, N. Y., Secretary.
American Association of Pathologists and Bacteriologists, Philadelphia, March 24-25. Dr. Howard T. Karsner, 2085 Adelbert Road, Cleveland, Ohio, Secretary.
American College of Physicians, San Francisco, April 4-8. Mr. E. R. Loveland, 133 South 36th Street, Philadelphia, Executive Secretary.
American Orthopsychiatric Association, Baltimore, February 18-20. Dr. George S. Stevenson, 450 Seventh Avenue, New York, Secretary.
Annual Congress on Medical Education, Medical Licensure and Hospitals, Chicago, February 15-16. Dr. William D. Cutter, Secretary, Council on Medical Education and Hospitals, 535 North Dearborn St., Chicago.
Arkansas Medical Society, Little Rock, April 5-7. Dr. William R. Bathurst, 814 Boyle Building, Little Rock, Secretary.
Medical Society of the Missouri Valley, Omaha, Neb., April 5-7. Dr. Joseph D. McCarthy, 107 South 17th Street, Omaha, Secretary.
Pacific Coast Surgical Association, Santa Barbara, Calif., February 25-27. Dr. E. L. Gilcreest, 384 Post St., San Francisco, Secretary.

WESTERN SURGICAL ASSOCIATION

Forty-First Annual Meeting, held at Denver, Dec. 4-5, 1931

(Concluded from page 506)

Carcinoma of the Breast: A Critical Study of Twenty-Four Cases

Dr. Charles D. Lockwood, Pasadena, Calif.: In 1926 I began the routine postoperative use of radium in primary operable cases of cancer of the breast. I have followed essentially the technic of Handley but have used 12.5 mg. of unscreened radium needles, leaving them in for twenty-four hours. This gives a total dosage of 1,200 milligram hours. In a critical review of twenty-four cases, twelve of which were treated by operation alone, and an equal number in which the postoperative radium was employed, I am convinced that the cases treated with radium have given distinctly better results. All cases were in the operable group, most of them with axillary involvement. There were none in the very early favorable group and none in the hopeless advanced group. All were proved carcinoma cases by microscopic examination. Of the twelve patients treated by radical operation, and, with the exception of two, by postoperative roentgen irradiation, only four lived more than three years. All had recurrences. Of the twelve patients treated postoperatively with radium, seven are living and well three or more years after operation. In five of these there have been no recurrences. One patient lived for five years without recurrence and then a recurrence in the manubrium followed a severe blow on the chest. One recurred in the axillary glands. These were removed by secondary operation and radium again applied to the axillary region. The patient is living three years after the original operation, with no recurrence since the second operation.

Early Operation for Duodenal Ulcer

Dr. D. C. Balfour, Rochester, Minn.: The selection of cases for early operation would be greatly simplified if it were possible to predict with any accuracy the course of the disease in the individual case. As yet there are no satisfactory criteria on which to base predictions in the uncomplicated case. In the complicated case, that is, when the severity of symptoms or the radiation of pain indicates that extraduodenal involvement has occurred, or when there has been a massive gastro-intestinal hemorrhage, or when motor impairment can be demonstrated, early operation is clearly the best course for the patient to pursue unless it is definitely contraindicated. In the absence of such complications, I believe that there are certain conditions under which operation may properly be advised for early uncomplicated duodenal ulcer. The surgical treatment of the early duodenal ulcer must be in many respects conducted on different principles from the treatment of the more chronic, extensive and complicated lesions. There are three essentials in the surgical treatment of these early cases: The operation is of insignificant risk, it should give good prospects of permanent cure, and it should not interfere with future surgical treatment if ulcer develops subsequently. All three of these essentials usually can be met by direct attack on the ulcer and reconstruction of the pyloric outlet. Early operation for duodenal ulcer also permits removal of the appendix. Whatever the relationship between the appendix and the inflammatory conditions in the duodenum, it is safe to say that in such cases the patient has a better chance of permanent cure if the appendix is removed than if it is not. Operation will also give an opportunity for careful exploration of the abdomen and the exclusion of any other lesions that might have been a factor in the patient's complaint or a precursor of future disease.

Early Diagnosis of Acute Intestinal Obstruction

Dr. Owen H. Wangensteen, Minneapolis: The high mortality in acute intestinal obstruction is due in a large measure to late diagnosis. Factors that contribute to delay in diagnosis are the absence of local abdominal physical signs in simple obstruction; misinterpretation of the significance of the expulsion of gas with enemas; indiscriminate administration of morphine before making a diagnosis, and the equivocal and oftentimes deceptive information obtained with apparently effectual catharsis in partial obstructions. Intermittent colicky pain, associated with nausea and vomiting but unattended by abdominal tenderness or rigidity, suggests a block in the continuity of the bowel. In strangulation types of obstruction, local physical signs are usually present, though not as early as in peritoneal lesions of an inflammatory character. The bowel below the point of obstruction is physiologically as well as anatomically normal and will expel an administered enema with the return of gas and feces. Gaseous shadows in the small intestine demonstrate the presence of intestinal stasis. The stethoscope serves to distinguish whether the stasis is mechanical or paralytic in character. The general condition of the patient is not significantly altered in simple obstruction. In strangulation types there is often quickening of the pulse. Changes in the blood detected by chemical examination obtain regularly only in high intestinal obstructions and are a late occurrence. When the criteria on which the diagnosis can be made early are properly evaluated and patients with acute intestinal obstruction come to operation at an opportune hour, the appalling mortality of the disease will cease to exist. In dealing with the late case of simple obstruction, enterostomy, an indirect procedure and an operation of necessity rather than of election, should be practiced. Decompression of the bowel with the nasal catheter and water siphonage should prove to be a therapeutic agent of great value in many types of simple obstruction and especially in postoperative adhesive obstruction. In strangulation obstruction in which the bowel is not viable, exteriorization and excision with the temporary establishment of a complete fistula followed by secondary anastomosis is to be preferred to primary resection.

Effect of Distention of Bowel on Its Circulation

Drs. W. D. Gatch, John E. Owen and Harold M. Trusler, Indianapolis: We conclude from our experiments that intra-intestinal pressure above the diastolic blood pressure prevents absorption of toxin by way of the mesentery, and that intra-intestinal pressure below the diastolic blood pressure probably prevents or hinders such absorption. The possibility of absorption by this route following sudden release of pressure is left undecided. Any absorption of toxin from a bowel inflated by a pressure greater than the diastolic blood pressure must be transperitoneal. We have presented evidence which shows that absorption of the toxic material can take place through a fresh bowel wall rendered anemic by distention. Any absorption from a gangrenous bowel, or from a bowel having its mesenteric circulation blocked, must be transperitoneal. There is considerable evidence to show that the peritoneum in contact with obstructed bowel can react to prevent toxins from entering the circulation. The facts impress us in favor of the views that in strangulations of the bowel the chief route of absorption is transperitoneal, that the body has a fairly effective defense against this absorption, and that it occurs for the most part suddenly and shortly before death. The results of our experiments lent support to the view that the best treatment of advanced ileus is simple relief of obstruction either by means of a high Witzel enterostomy or by gun barrel enterostomy after resection of gangrenous bowel. The risk of leaving a gangrenous loop of bowel is often less than the risk of exploratory laparotomy. The ability of seminecrotic bowel to recover is phenomenal. Our experiments show that a rapid drop in blood pressure is the most constant indication that absorption of toxic material has occurred. We believe that this makes spinal anesthesia dangerous.

Chemical Aspects of Acute Intestinal Obstruction

Dr. Thomas G. Orr, Kansas City, Mo.: It appears from recent research that, by maintaining sodium chloride balance in the body in upper intestinal tract obstructive lesions, other chemical factors are also maintained in balance. This specific quality of sodium chloride is active in its fullest measure only when sufficient water is supplied to relieve or prevent dehydration. Distilled water and dextrose are not in any sense substitutes for sodium chloride solution in the treatment of obstructive or paralytic conditions of the gastro-intestinal tract.

Indications for Intestinal Drainage—Enterostomy and Colostomy

Dr. Donald Macrae, Council Bluffs, Iowa: I am convinced that no procedure has added more to the saving of life in my hands than enterostomy. One should not wait for fecal vomiting, or even near fecal vomiting in postoperative cases, or any other obstructive condition. I believe I was the first to advocate jejunostomy or enterostomy during the primary operation when there is the slightest evidence or anticipation of general peritoneal involvement developing after the operation. Drainage of all intussusception cases above the affected segment in every case, early or late, is, I believe, original with me. Many of my prophylactic enterostomy patients no doubt might well do without it, but the convalescence is so delightful to patient and surgeon, and the personal relief of knowing that one may not be required to perform a secondary operation, urge me to continue the practice. In addition, I am satisfied that, when more or less soiling of the peritoneum from early rupture of the appendix, for instance, is present, an occasional death from general infection may be avoided by draining the intestine.

Surgical Problems of the Thyroid

Dr. Arnold S. Jackson, Madison, Wis.: A discussion of the principal problems confronting the surgeon doing thyroid operations is given together with a summary of the data on these questions gathered from thirty members of the society. A comparison is also given from answers to questionnaires sent to the leading thyroid clinics. Among the problems considered is that of the iodine-fast exophthalmic goiter case in which it is pointed out that the risk of operation has been materially increased as a result of the prolonged use of iodine. Eighteen deaths as reported by those answering the questionnaires are cited as proof of this contention. The use of digitalis is discussed, also iodine in toxic adenoma. The advantages of the radio knife in performing thyroidectomy are stressed. A greater part of the goiter can be destroyed with a higher degree of safety and in a shorter time than with the scalpel. Postoperative progressive exophthalmos with hypothyroidism is discussed, also drainage after thyroidectomy; toxic goiter and pregnancy; radiotherapy; the postoperative use of iodine, and the decreasing incidence of toxic goiter.

Diagnosis and Surgical Treatment of Cysts of Thyroglossal Duct

Drs. Fred W. Rankin and Norman W. Crisp, Rochester, Minn.: Surgical extirpation of a cyst of the thyroglossal duct or a sinus of the thyroglossal duct is either a complete success or an absolute failure. There is no compromise in the estimation of results; few, if any, other operations of election have such an arbitrary prognosis. We have had little satisfaction in the confirmation of diagnosis by injecting the fistula with some opaque substance. Occasionally, in operating it has proved advantageous to inject methylene blue (methylthionine chloride, U. S. P.) into the tract, but since the technic used as a routine has given such satisfactory end-results this, too, has been abandoned. We have deviated little from the operative treatment as outlined by Sistrunk in 1920, the extirpation of the sinuses and cysts by this method being simple and satisfactory. Since Sistrunk's report, the number of consecutive cases of the cyst or sinus thyroglossal duct in the clinic has risen to 200. In more than 100 of these, operations, usually multiple, had been performed prior to the patient's admission; in one case as many as ten operations had been performed. The procedures had varied from incision and drainage, which, obviously, is indicated in the presence of acute inflammation, to curettement and incomplete excision. It was possible to do the complete operation in one stage in 175 of these 200 cases. In 9 cases in which acute infection was present, incision and drainage had to be done. In the 184 cases in which complete extirpation was done there has been no recurrence of trouble. In the remaining sixteen cases, because of extensive scarring and various degrees of infection, the tract could not be removed completely, but thus far recurrence of trouble has not been noted. However, further trouble may occur. One patient has returned recently who had been operated on before the Sistrunk operation was in vogue and apparently had been cured sixteen years ago. The duct then recurred, and its extirpation by the standard technic thus far has not been followed by recurrence or any evidence of failure.

The Pain of Tumors of the Spinal Cord

Dr. Winchell M. Craig, Rochester, Minn.: The history of pain is probably one of the principal features in the differential diagnosis between tumors of the spinal cord and lesions elsewhere in the body which produce similar symptoms. In a large percentage of cases, the symptom of pain is associated with some motor or sensory derangement which immediately gives a clue as to the nature of the underlying pathologic process. However, there are some cases of tumor of the spinal cord in which pain persists as the outstanding symptom for a number of months, or even years, proving so resistant to the more conservative forms of treatment that more radical measures seem imperative and, in the apparent absence of associated neurologic symptoms, operations on the abdomen or other regions are often carried out in the mistaken hope of relieving this pain. In reviewing a large series of cases of tumor of the spinal cord, it was found that such surgical procedures had been carried out in more than 10 per cent of the cases. Examples of these cases are presented in an effort to emphasize that, if the type of pain suggests that it may be of central origin, it is necessary to analyze the pain and to make repeated neurologic and other examinations, even in the presence of other coexisting pathologic changes.

Statistics of Appendicitis

Dr. Carl E. Black, Jacksonville, Ill.: In a table made up from fifty-two reports in standard surgical journals, an attempt was made to secure a basic average mortality in the several types of appendicitis cases. These reports were from more than 150 hospitals and comprised the work of more than 1,500 surgeons with 83,144 cases. While the results in the several categories varied from a mortality of 0.036 per cent in acute cases reported by Quain of Bismarck, N. D., to 42 per cent reported by Tucker of Wisconsin (Kirchner's cases from twenty-three hospitals), the final results may be summarized as follows: general mortality, 4.09 per cent; acute cases, 4.88 per cent; chronic cases, 0.99 per cent; suppurative cases, 10.15 per cent (or, omitting 10,000 cases by Kirchner covering a period of thirty years, 7.87 per cent); gangrenous cases, 8.73 per cent, and spreading peritonitis cases, 21.19 per cent. This summary furnished the basic average mortality figures for appendicitis. A comparison of these cases was made with my own statistical results from a study of the appendicitis cases from Passavant Memorial Hospital for nine years. In my group there were nine operators with an average mortality for the period of 4.88 per cent. By deducting the cases of one surgeon in my group, the mortality would be reduced more than 1 per cent.

Cautery Excision of Malignant Cervix Uteri After the Method of Wertheim

Dr. James F. Percy, Los Angeles: I duplicate the operation originally performed by Wertheim with the cold knife with one that has a cauterizing heat—not diathermy. The malignant growth in the vagina is first thoroughly cooked with the cautery so that the fixed pathologic areas are not only sterilized but made movable. The operation is then completed from the abdominal side, also with the cautery knife.

Current Medical Literature

AMERICAN

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Titles marked with an asterisk (*) are abstracted below.

American J. Medical Sciences, Philadelphia

182: 741-896 (Dec.) 1931

Observations on Etiologic Relationship of Achylia Gastrica to Pernicious Anemia: Part IV. W. B. Castle, C. W. Heath and M. B. Strauss, Boston.—p. 741.
*Hodgkin's Disease of Bone Marrow and Spleen Without Apparent Involvement of Lymph Nodes. E. B. Krumbhaar, Philadelphia.—p. 764.
*Cardiac Pain and Sudden Death. A. Lambert, New York.—p. 769.
Concerning Certain Phases of Angina Pectoris Based on Study of 350 Cases. H. Brooks, New York.—p. 784.
*Experimental Chronic Hyperparathyroidism: I. Metabolism Studies in Man. J. L. Johnson and R. M. Wilder, Chicago.—p. 800.
Diabetic Pyorrhea. J. B. Williams, Richmond, Va.—p. 807.
*Immune Transfusion in Lobar Pneumonia. A. L. Barach, with assistance of M. Soroka, New York.—p. 811.
Cholagogue Effect of Intravenous Injection of Sodium Dehydrocholate, with Résumé of Literature on Bile Salt Metabolism. R. F. Sterner, H. J. Bartle and B. B. V. Lyon, Philadelphia.—p. 822.
Survey of Diphtheria Prevention in Philadelphia. E. L. Bauer, Philadelphia.—p. 839.
*Clinical Observations on So-Called Leather-Bottle Stomach. J. Friedenwald and T. H. Morrison, Baltimore.—p. 847.

Hodgkin's Disease.—Krumbhaar reports the case history and necropsy observations in a fatal case of Hodgkin's disease that was practically limited to the spleen and bone marrow, though in these two organs the involvement was extensive. The histologic appearance of the femoral bone marrow suggested that the disease process may have been primary in this tissue. Absolutely no lymph node involvement could be found, and the lymphoid tissue of the gastro-intestinal tract was histologically unchanged. While this does not constitute unequivocal proof of the absence of lymph node involvement, it points strongly in that direction. The absence of lesions in the mucosae and of the so-called germinal centers in the spleen suggest interesting speculations as to the type of cell in which the disease process originates. The author suggests that the disease should be considered a disease of the hemolytopoietic or the reticulo-endothelial system rather than of lymphoid tissue.

Cardiac Pain and Sudden Death.—According to Lambert, the most frequent cause of sudden death is not cerebral hemorrhage but some cardiac lesion. Sudden death is not of common occurrence in heart disease when all forms of heart disease are considered. Pathologic anatomy does not offer an explanation of cardiac pain. Experimental evidence strongly indicates that the myocardial muscular tissue is insensitive and does not cause pain by ischemia or failure of action through anoxemia or degeneration. Cardiac pain is expressed only through the afferent nerves of the sympathetic portion of the autonomic nervous system. Cardiac pain occurs when functional failure of normal reflexes produces conditions that stimulate the afferent nerve endings in the adventitia of the aorta and coronary vessels. Experimental evidence also strongly indicates that vascular distention rather than vascular spasm is the usual cause of cardiac pain.

Chronic Hyperparathyroidism.—Johnson and Wilder report that the repeated injection of parathyroid extract produced, in puppies and young rats, a uniform skeletal abnormality that is characteristic of osteitis fibrosa osteoplastica (von Recklinghausen). A lacunar resorption of the trabeculae and corticalis of bones resulted, with replacement of marrow and cortex by fibrous connective tissue and osteoid tissue. Giant cells appeared and cysts were formed. The administration of viosterol together with parathyroid extract did not modify significantly the end-results. The results of the experiments confirm the view that the pathogenesis of osteitis fibrosa osteoplastica, as this disease is observed spontaneously in man, is an oversupply of parathyroid hormone and that this disease bears no relation, etiologically, either to osteomalacia or to rickets.

Immune Transfusion in Lobar Pneumonia.—Eight cases of pneumococcus lobar pneumonia, six due to pneumococcus type III and two to pneumococcus type II, were treated by Barach and Soroka by transfusion of from 1,000 to 1,600 cc. of blood from donors immunized over long periods. No favorable effect was observed on the clinical condition of the patient as a result of any of the transfusions. The introduction of a protective substance present in the donor's blood could not be demonstrated in the patient's blood in the five fatal cases and appeared to have no influence on the course of the disease in the three recovered patients.

Leather-Bottle Stomach.—Friedenwald and Morrison believe that the term "leather-bottle stomach," as suggested by Wyard, should be reserved as a general term for a number of conditions which though similar in gross appearance present, however, a varied pathology. Clinically, it is rarely possible to differentiate these types. This condition may present a local or a diffuse involvement. The term "linitis plastica" should be discarded and a more appropriate term, such as "carcinoma plastica," be substituted. The condition is represented by a small-cell epithelioid growth having definite pathologic characteristics, the diagnosis of which cannot be made except following a most painstaking microscopic examination. The clinical as well as the roentgen manifestations of leather-bottle stomach are similar, no matter what the characteristic pathologic changes may represent. These manifestations are largely those of carcinoma, though there appears to be a type that is definitely not malignant. The carcinoma plastica and fibromatosis forms produce death by inducing profound anemia and malnutrition; the scirrhous carcinomatous type, largely as the result of metastases. The treatment is surgical; the only hope for a complete cure lies in radical surgery in the form either of pylorectomy or of gastrectomy. Occasionally, palliative measures such as gastro-enterostomy may afford relief.

American Journal of Physiology, Baltimore

99: 1-278 (Dec.) 1931

Studies on Dog's Cortex: I. Sensorimotor Areas. S. H. Bartley and E. B. Newman, Kansas City, Kan.—p. 1.
Observations on Adrenalectomy in Marsupial, Hibernating and Higher Mammalian Types. S. W. Britton, Charlottesville, Va.—p. 9.
Some Effects of Cortico-Adrenal Extract and Other Substances on Adrenalectomized Animals. S. W. Britton and H. Silvette, Charlottesville, Va.—p. 15.
Induction of Precocious Sexual Maturity by Cortico-Adrenal Extract. E. L. Corey and S. W. Britton, Charlottesville, Va.—p. 33.
*Oral Administration of Cortico-Adrenal Extract. S. W. Britton, J. C. Flippin and H. Silvette, with assistance of R. Kline, Charlottesville, Va.—p. 44.
*Studies in Physiology of Exercise: VII Modification of Colonic Motility Induced by Exercise and Some Indications for Nervous Mechanism. V. R. DeYoung, H. A. Rice and A. H. Steinhaus, Chicago.—p. 52.
Delimitation of Central Nervous Mechanism Involved in Reflex Hyperglycemia. C. M. Brooks, Jersey City, N. J.—p. 64.
Secretion of Phenol Red by Mammalian Kidney. E. K. Marshall, Jr., Baltimore.—p. 77.
Studies in Motor Activity of Large Intestine: II. Influence of Balloon Technic on Colon Motility. H. Lawson and R. D. Templeton, Chicago.—p. 87.
*Studies on Physiology of Secretin: IV. Effect on Secretion of Bile. E. U. Still, J. W. McBean and F. A Ries, Chicago.—p. 94.
Excretion of Urine in Dog: II. Urea and Creatinine Clearance on Cracker Meal Diet. N. Jolliffe and H. W. Smith, New York.—p. 101.
Irritability Changes in Nerve in Response to Subthreshold Induction Shocks, and Related Phenomena Including the Relatively Refractory Phase. J. Erlanger and E. A. Blair, St. Louis.—p. 108.
Irritability Changes in Nerve in Response to Subthreshold Constant Currents, and Related Phenomena. J. Erlanger and E. A. Blair, St. Louis.—p. 129.
*Afferent Paths of Nerves Involved in Vomiting Reflex Induced by Distention of an Isolated Pyloric Pouch. S. L. Goldberg, Rochester, Minn.—p. 156.
Secondary Rise in Blood Pressure Following Peripheral Splanchnic Nerve Stimulation. V. Johnson and Adelaide Johnson, Chicago.—p. 160.
Central and Peripheral Latencies in Some Tendon Reflexes of Rat. R. Y. Herren and D. B. Lindsley, Iowa City.—p. 167.
Osmotic Relations of Blood and Glandular Secretions: I. Regulatory Action of Total Blood Electrolytes on Concentration of Gastric Chlorides. A. Gilman and G. R. Cowgill, New Haven, Conn.—p. 172.

Inquiries into Structure and Function of Myenteric Plexus: I. Differences in Reaction of Muscle and Nerves of Bowel to Constant and Interrupted Currents. W. C. Alvarez and Mildred Foster Bennett, with assistance of Eola Woolley, Kiyoshi Hosoi and E. J. Blades, Rochester, Minn.—p. 179.
Some Effects of Fresh Pituitary Homo-Implants and of Gonad-Stimulating Substance from Human Pregnancy Urine on Reproductive Tract of Male Rat. C. R. Moore and Dorothy Price, Chicago.—p. 197.
Passage of Materials Through Intestinal Wall: I. Relation Between Intra-Intestinal Pressure and Rate of Absorption of Water. H. S. Wells, Nashville, Tenn.—p. 209.
*Effect of Diet of Polished Rice on Mineral Content of Carcasses of Pigeons. J. S. McHargue and W. R. Roy.—p. 221.
Study of Spontaneous Activity in Excised Uterine Horns of Rat, by an Improved Method. O. G. Harne, Baltimore.—p. 227.
*Studies on Flow of Bile into Duodenum and Existence of a Sphincter of Oddi. H. C. Lueth, Chicago.—p. 237.
Posterior Pituitary Hormone in Metabolism: II. Effect of Pitressin and Pituitrin on Carbohydrate Reserves of Adrenalectomized Rabbits. F. Bischoff and M. Louisa Long, with assistance of R. D. Evans, Santa Barbara, Calif.—p. 253.
Effects of Thyroid Feeding on Heart Rate in Normal Dogs and in Dogs with Completely Denervated Hearts. Margaret McIntyre, Chicago.—p. 261.
*Menstruation in Pithecus (Macacus) Rhesus Following Bilateral and Unilateral Ovariectomy Performed Early in Cycle. G. van Wagenen and S. B. D. Aberle, New Haven, Conn.—p. 271.

Oral Administration of Corticosuprarenal Extract.—Britton and his associates demonstrate the effectiveness of corticosuprarenal extract given by mouth. It prolongs considerably and possibly indefinitely the lives of suprarenalectomized cats and brings about complete recovery from even the severest symptoms of suprarenal insufficiency, when given by the oral route. The low blood sugar values found in suprarenalectomized animals are markedly increased, and the high nonprotein nitrogen values and blood cell volumes are reduced toward or to the normal levels, during the recovery period. Animals that have refused food may be induced to eat within an hour after administration of the extract. These observations are in keeping with those produced by intraperitoneal injection of the material. Large amounts of the extract, approximately three to five times the intraperitoneal dosage, were necessary by mouth in order to produce comparable results. Epinephrine given by mouth in similar concentration to that found in corticosuprarenal extract, and also dextrose solutions, have no noteworthy effect on suprarenal insufficiency.

Effect of Exercise on Colonic Motility.—The effects of short periods of strenuous treadmill running on the motility of the colon of dogs completely recovered from appropriate surgical intervention were recorded by DeYoung and his associates by the balloon method in a series of nine dogs. It was found that during an exercise period there is in a majority of cases a marked rise in colonic tone and motility. The rise is not coextensive with the running period. It begins usually from one to three minutes after the start of exercise and recedes after a few minutes without reference to the duration of exercise. From studies following a variety of denervation procedures it is concluded that the appearance of the rise depends on the intactness of at least one of two parasympathetic inflows, probably vagal, entering the colon over the ileocecal juncture from above. The rise did not appear in a dog that ran with evident fear of the treadmill until after he had been conditioned to run without this emotion. Following the exercise period there is usually a period of subnormal activity of varying length—sometimes as long as forty-five minutes.

Physiology of Secretin.—According to Still and his associates, the cholagogue action of secretin is not due to metabolites arising from the pancreas or other abdominal viscera. Secretin, alone, stimulates the hepatic cells, resulting in an augmentation in the flow of bile, which in acute and chronic experiments of from eight to ten hours in length contain lower concentrations of the bile salts. Secretin does not cause circulatory changes in the liver as measured by the liver volume method.

Vomiting Reflex from Distended Pyloric Pouch.—Goldberg describes experiments in which he noted that reflex vomiting can be induced by distending an isolated pyloric pouch until the pressure within the pouch rises above a certain constant level which can be definitely measured. The afferent side of this reflex arc is entirely through the vagus nerves. Supposedly denervated pouches contain enough intact vagus fibers to carry these afferent impulses.

Mineral Content of Pigeons Fed Polished Rice.—McHargue and Roy state that, in polishing brown rice, substances containing considerable quantities of ash, manganese, iron, calcium, magnesium, phosphorus and potassium are removed in the offal. When pigeons are fed polished rice until polyneuritis develops, analyses of the ash of their carcasses show marked diminution in magnesium, phosphorus and potassium content as well as in the content of some of the minor constituents. Unpolished rice, wheat and yellow corn cured polyneuritis and restored normal body weight, showing that they contained vitamin B_1 and B_3 factors, though yellow corn produced slower recovery and gain in body weight than unpolished rice and wheat. Barley, rye and white corn contained vitamin B_1 but were deficient in the vitamin B_3 factor. Wheat, unpolished rice and yellow corn contained more of the elements copper, manganese and iron than barley, rye and white corn, which leads the authors to infer that the minor mineral constituents as well as the major constituents calcium, magnesium, phosphorus and potassium are factors in protecting pigeons from polyneuritis.

Function of Sphincter of Oddi.—Lueth is convinced that the intramural portion of the common bile duct possesses a special sphincteric mechanism, that a sphincter of the papilla exists and that this sphincteric mechanism is intimately coordinated with duodenal peristalsis and tone but may function independently of the duodenum. His data do not permit him to conclude whether the portion of the sphincteric mechanism located in the duodenal musculature has a reciprocal relation with the sphincter of the papilla or whether it functions independently of the duodenal musculature.

Menstruation Following Ovariectomy in Monkey.—In Pithecus (Macacus) rhesus, van Wagenen and Aberle found that excision of both ovaries early in the cycle (from seventy-two hours to the tenth day and in one instance on the thirteenth day) was followed by menstruation after an interval of five or six days. In amount and duration the saguineous discharge was not distinguishable from the normal menses of the individual animal. Microscopic examination of the ovaries showed that bleeding could occur in the absence of a mature follicle or young corpus luteum. Menstruation from an endometrium of interval type occurred in animals operated on on the fourth and fifth days of the cycle. Removal of a single ovary on the fourth day of the cycle was followed in one case by menstruation on the fourth day following the operation, but in another animal no postoperative menstruation occurred. Both bilateral and unilateral ovariectomy failed to induce bleeding when performed on the first day of menstruation.

American Journal of Surgery, New York

14: 591-796 (Dec.) 1931

*Diagnostic and Therapeutic Injections of Sympathetic Nerves. P. G. Flothow, Seattle.—p. 591.
Some Thoughts on Problem of Cancer Control. W. B. Coley, New York.—p. 605.
Hemorrhoids: Medical Aspect. J. L. Kantor, New York.—p. 620.
Hemorrhoidectomy by Means of High Frequency Current. W. Bierman, New York.—p. 626.
Case of Uterine Fibroid Separated from Its Pedicle. H. J. Shelley, New York.—p. 631.
Hysterosalpingography by Means of Iodized Rapeseed Oil. A. Mathieu, Portland, Ore.—p. 634.
Staphylococcemia Following Cesarean Section: Recovery: Case of Rare Anatomic Anomaly. J. Halperin, Brooklyn.—p. 637.
Focal Infection. C. E. Galloway, Evanston, Ill.—p. 643.
*Diagnostic Pneumothorax: Guide in Localization, Treatment and Prognosis of Pulmonary Abscesses. W. B. Faulkner, Jr., San Francisco.—p. 646.
Unilateral Idiopathic Hypertrophy of Male Breast. F. Christopher, Winnetka, Ill.—p. 652.
Effect of "Avertin" on Normal and Impaired Liver. W. Bourne and B. B. Raginsky, Montreal, Canada.—p. 653.
Clinical Management of Horseshoe Kidney. R. Gutierrez, New York.—p. 657.

Injections of Sympathetic Nerves.—Flothow states that the most satisfactory diagnostic procedure for conditions affected by the sympathetic nervous system is the direct injection of the sympathetic nerves with procaine hydrochloride. By means of these diagnostic injections it is possible to determine accurately whether or not therapeutic measures should be directed toward the sympathetic nervous system. The two factors most frequently involved are pain and diminished blood supply. Diagnostic injection gives definite information as to the relief of pain and as to the quantitative increase in vascularity that may be obtained by therapeutic measures. Alcohol injection of the sympathetic nerves is an established therapeutic measure. The author has used it successfully in arteriosclerotic conditions, Buerger's disease, Raynaud's disease, chronic polyarthritis, trifacial neuralgia, atypical facial pains, angina pectoris, trophic ulcers, neurotrophic skin lesions, diabetic neuritis, and other conditions. Tables are presented including sixty-four diagnostic injections, forty-eight of which were followed by alcohol injection with uniformly good results. Alcohol injection may be used as a substitute for surgical removal of sympathetic ganglions when the latter is not indicated. Alcohol injection does not have the permanence of the operation and is therefore not indicated when permanent maximum blood supply is essential, except when operation is definitely contraindicated. Alcohol injection can be used more successfully than the LeRiche operation in all the conditions for which this operation has been advocated. Surgery or alcohol injection on the sympathetic nervous system should be preceded by diagnostic procaine injection. This diagnostic injection has taken sympathetic therapeutic measures entirely out of the realm of guesswork.

Diagnostic Pneumothorax.—Faulkner believes that diagnostic pneumothorax has a wide application in thoracic surgery. It is easy to perform and in properly selected cases is rarely followed by complications. The use of this procedure permits early selection of cases that probably will require surgery and allows one to recognize those that are likely to show recovery by conservative measures. The employment of pneumothorax along with bronchoscopy and iodized oil has increased the author's percentage of cures and has avoided operation in a number of cases.

American Review of Tuberculosis, New York

24: 605-794 (Dec.) 1931

*Bronchoscopic Treatment of Bronchiectasis and Lung Abscess. L. H. Clerf, Philadelphia.—p. 605.
*Surgical Treatment of Bronchiectasis and Lung Abscess. S. W. Harrington, Rochester, Minn.—p. 612.
Pathology of Bronchiectasis and Lung Abscess. B. S. Kline, Cleveland.—p. 626.
*Extrapleural Paraffin Filling in Thoracic Surgery. W. L. Rogers, San Francisco.—p. 636.
*Diabetes and Pulmonary Tuberculosis. A. L. Banyai, Wauwatosa, Wis.—p. 650.
*Pulmonary Tuberculosis Complicating Diabetes Mellitus. H. B. Gotten, Memphis, Tenn.—p. 668.
Some Considerations of Nutrition Problem in Pulmonary Disease. B. Gordon and E. S. Tai, Philadelphia.—p. 673.
Vincent's Infection of Mouth in Tuberculosis Patients. W. F. Drea, Colorado Springs, Colo.—p. 678.
*Treatment of Morphine Addiction in Tuberculosis by Pavlov's Conditioning Method. C. Rubenstein, Duarte, Calif.—p. 682.
Specificity of Light Action in Experimental Tuberculosis. Ethel M. Luce-Clausen and Stanhope Bayne-Jones, Rochester, Minn.—p. 686.
*Effect of Environment on Normal and Tuberculous Guinea-Pigs. Myrtle Greenfield, Albuquerque, N. M.—p. 695.
*An Interpretation of Pathology of Pulmonary Tuberculois. E. M. Medlar and K. T. Sasano, Mount McGtegor, N. Y.—p. 705.
Comparison of Effects of Viosterol in Acute Experimental Avian and Bovine Tuberculosis. T. D. Spies and T. T. Walker, Boston.—p. 723
Biochemical Studies of Bacterial Derivatives: XV. Changes in Chemical and Biologic Properties of Human Tubercle Bacillus Polysaccharide MB-200 Produced by Mild Acid Hydrolysis. K. L. McAlpine and P. Masucci, Glenolden, Pa.—p. 729.
Id.: XVI. Some Differential Chemical Changes Accompanying the Growth of Human Tubercle Bacillus H37 and Bovine Tubercle Bacillus 523 Grown on Long's Synthetic Medium. P. Masucci, K L. McAlpine and J. T. Glenn, Glenolden, Pa.—p. 737.
Discussion of Certain Fat Constituents of Acid-Fast Bacteria. R J. Anderson, New Haven, Conn.—p. 746.
Some Observations on Chemical and Biologic Properties of Phosphatide from Tubercle Bacillus. C. H. Boissevain and C. T. Ryder, Colorado Springs, Colo.—p. 751.
Pathogenic Properties of B C G. A. Boquet, Paris, France.—p. 764.
Present Knowledge of Innocuousness of B C G. R. Kraus, Santiago, Chile.—p. 778.

Bronchoscopic Treatment of Bronchiectasis and Lung Abscess.—Clerf is of the opinion that in pulmonary abscess, bronchoscopy should be considered a part of the conservative plan of treatment if there is evidence of interference with drainage. Every case of unilateral bronchiectasis should have the advantage of diagnostic bronchoscopy to rule out possible endobronchial lesions. This is particularly important if surgical treatment is contemplated. In bilateral bronchiectasis occurring in adults, bronchoscopy is an aid to the internist and its benefits are temporary; in children, bronchoscopy combined with other appropriate measures is often followed by excellent results.

Surgical Treatment of Bronchiectasis and Lung Abscess. — Harrington states that pulmonary suppuration is usually progressive. The surgical treatment should be as conservative as possible and consistent with effectual treatment. The most common operative procedures are artificial pneumothorax, phrenicotomy, surgical collapse and partial pneumonectomy. The type of operation depends on the time in the course of the disease that treatment is instituted, the situation and extent of the lesion, and the general condition of the patient. In most cases multiple operative procedures are required to effect symptomatic cure. The operative procedures and results are given concerning 111 cases. There were 10 deaths (9 per cent). In 64 cases (66 per cent) there was cure or from 50 to 90 per cent relief of symptoms, and in 16 cases (17 per cent) symptoms were not relieved. The pulmonary infection was due to malignant lesions in 5 cases and to actinomycosis in 2 cases, with temporary improvement of symptoms due to relief of sepsis.

Extrapleural Paraffin Filling.—Rogers believes that extrapleural compression has rightfully won a place in the surgical treatment of chest disease. This method broadens, to some extent, the indications for surgical intervention. The results are gratifying when one adheres to the more specific indications. The paraffin mixture is probably the best compression substance available at present. In the future a substance that will have a lasting effect of continuous pressure and that will eventually be absorbed or assimilated by fibrous tissue invasion may be found.

Diabetes and Tuberculosis.—Banyai presents an analysis of thirty-one cases of diabetes mellitus complicated by pulmonary tuberculosis. Tuberculosis complicating diabetes often has an insidious onset and larvad, atypical forms. Unusual, subapical or perihilar localization is frequent; bronchopneumonic lesions dominate the picture. The cause of lack of symptoms and absence of physical signs in early cases may be sought in the nature and localization of the disease, and in the fact that acidosis is liable to mitigate or suppress allergic reactions and that in the aged (40.9 per cent of Joslin's diabetic tuberculous patients were 50 years or older) the symptoms of tuberculosis are often inconspicuous and the physical signs hard to detect because of physiologic changes characteristic of this age period. In the presence of respiratory or constitutional symptoms or signs, or when diabetes is well under control and the patient is still not doing well, the presence or absence of pulmonary tuberculosis must be ascertained by means of stereoscopic roentgenograms. When the pulmonary disease reaches advanced stages, symptoms become more manifest and physical signs more easily detectable. The author has never seen insulin cause any focal or constitutional reaction. The indications and contraindications for surgical intervention are the same as in nondiabetic patients.

Tuberculosis and Diabetes.—Gotten considers pulmonary tuberculosis complicating diabetes a serious condition, carrying a mortality rate of over 50 per cent in the first year after onset. These patients apparently have a lower state of resistance than the nondiabetic patients. However, with a most careful course of treatment, embracing the use of insulin and a proper adjustment of diet for maintaining adequate nutrition, many can be restored to health.

Treatment of Morphine Addiction. — Rubenstein states that in tuberculosis one is not infrequently confronted with the problem of treating narcotic addiction. By reason of their proneness to aggravate the chest condition, the usual withdrawal methods have proved far from satisfactory in their application to the tuberculous patient. The author has successfully applied Pavlov's conditioning method at the Los Angeles Sanatorium to two persons with pulmonary tuberculosis who were addicted to the morphine habit. In both cases it was found that the treatment was rapid and effective and did *not* produce the so-called withdrawal symptoms.

Effect of Environment on Normal and Tuberculous Guinea-Pigs.—Greenfield points out that normal guinea-pigs live longer in an open building than they do in either a wooden or a glass building. Offspring of normal guinea-pigs housed in an open, a wooden or a glass building are able to live and produce young. Guinea-pigs are more able to combat a tuberculous infection when they are housed in an open building than they are when housed in either a wooden or a glass building. The percentage of days of life lost because of tuberculous infection in an open building is 11.6, in a wooden building 32, and in a glass building 24.1. Offspring of tuberculous guinea-pigs housed in an open building are able to live and produce young, while offspring of tuberculous guinea-pigs housed in either a wooden or a glass building live only a short time.

Interpretation of Pathology of Pulmonary Tuberculosis.—According to Medlar and Sasano, massive pulmonary tuberculosis in the rabbit is dependent on the rupture of pulmonary tuberculous abscesses into the bronchial tree and inhalation of the contents of these abscesses into the previously uninvolved lung tissue. It seems plausible that this is also the method of extensive dissemination of tuberculosis within the human lung. The pathology of pulmonary tuberculosis is essentially a process of inflammation and repair. Interpreted on the basis of inflammation and repair, the complex pathology becomes greatly simplified and more easily understood. The authors believe that the complex terminology used to describe the bizarre pathology of pulmonary tuberculosis is unnecessary and confusing. The term "specific" when used in connection with tuberculous lesions should be restricted to denote a biochemical, not a morphologic, specificity.

Annals of Surgery, Philadelphia

45: 961-1129 (Dec.) 1931

*Bacterial Synergism in Disease Processes, with Confirmation on Synergistic Bacterial Etiology of Certain Type of Progressive Gangrene of Abdominal Wall. F. L. Meleney, New York.—p. 961.
*Spina Bifida: Clinical Study with Report of Twelve Personal Cases. W. T. Coughlin, St. Louis.—p. 982.
Brilliant Green: Clinical Study of Its Value as Local Antiseptic. J. K. Narat, Chicago.—p. 1007.
*Some Indications for Section of Posterior Root of Trigeminal Nerve Through Posterior Fossa. W. P. van Wagenen, Rochester, N. Y.—p. 1013.
Penetrating Wounds of Abdomen. A. E. Billings and A. Walkling, Philadelphia.—p. 1018.
Evaluation of Results in 324 Gastric and Duodenal Ulcers. J. W. Hinton, New York.—p. 1044.
*Volvulus of Sigmoid Megacolon. C. Weeks, New York—p. 1050.
Diverticulum of Male Urinary Bladder. J. C. O'Day, Honolulu, Hawaii.—p. 1061.
Extirpation of Pregnant Uterus at Full Term. W. Wertenbaker, Wilmington, Del.—p. 1066.
*Interparietal Hernias. W. E. Lower and N. F. Hicken, Cleveland.—p. 1070.
Duodenal Hernia. O. S. Cofer and H. S. Phillips, Atlanta, Ga.—p. 1088.
Roentgenographic Visualization of Arteries of Extremities in Peripheral Vascular Disease. H. E. Pearse, Jr., and S. L. Warren, Rochester, N. Y.—p. 1094.
*Gangrene of Finger Following Digital Nerve Block Anesthesia. J. H. Garlock, New York.—p. 1103.

Bacterial Synergism in Disease Processes.—In connection with two cases of progressive gangrene of the abdominal wall, Meleney emphasizes the fact that both occurred following the drainage of a peritoneal abscess, presumably of appendical origin. In both, the streptococcus was present in the first cultures. In both cases the peritoneal infection took care of itself. In both, the gangrene developed in the region of silkworm-catgut retention sutures. Both patients complained bitterly of the pain associated with the lesion. In both, conservative treatment failed to check the progress of the disease. Both recovered promptly after the wide excision of the lesion. In both instances the micro-aerophilic streptococcus (anaerobic by preference) was found in pure culture far out in relatively normal tissues and in the red zone beyond the gangrene. In both cases the gangrenous tissue contained both the streptococcus and the staphylococcus. Practically identical results were obtained when the organisms from these two cases were injected into experimental animals. The fact that these organisms have an adjuvant action on one another seems to be confirmed by the animal experiments. The nature of this phenomenon has not been clearly shown and will have to await further experimentation. The results of the author's study so far seem to indicate that one organism does not initiate a process which the other completes at a later time, as is the case with a combination of proteolytic and saccharolytic organisms. The study indicates rather that it is necessary for them to be growing together intimately and that the product which is the cause of the gangrene is made by the action of one organism on some intermediate product of metabolism produced by the other, as is the case with certain combinations of fermentative bacteria.

Spina Bifida.—Coughlin is of the opinion that, by rigidly following a technic which he outlines, the operative mortality in spina bifida should be 0. An open sac alone is not a contraindication to operation. The diagnosis of myelocele does not always contraindicate operation. The diagnosis may be wrong when the defect is in the lumbosacral region. A total paralysis of the sphincters, in the presence of a myelocele, is a distinct contraindication to operation. In meningomyelocele the only way to be certain with regard to the presence of the cord in the sac is to open and look within it. Infants aged less than 4 days stand the operation best. The author believes that there is no need to make any kind of osteoplastic reconstruction of the spinal canal. Paralyses in certain cases of meningomyelocele are improved by operation.

Section of Posterior Root of Trigeminal Nerve.—Van Wagenen reports five cases in which section of the posterior root of the trigeminal nerve was of necessity done for the relief of pain. In one of these cases the operation was combined with a unilateral upper cervical dorsal rhizotomy. The impression is gained from these and other cases that, while the operation is considerably more hazardous and difficult than that through the temporal route, it is a valuable adjunct to the neurosurgical armamentarium. No evidence was gained from this series of cases that the type or area of anesthesia differs from that which occurs when the trigeminal root is sectioned by way of the temporal fossa, provided the root is totally divided. In two instances in which only the lower half of the nerve was sectioned there was a preservation of sensation over the face in all but several localized areas.

Sigmoid Megacolon Volvulus.—Weeks points out that there is a definite clinical entity known as volvulus of a megacolon of the sigmoid. In the majority of cases the dilatation in this condition is limited to the sigmoid. This condition, unlike uncomplicated Hirschsprung's disease, occurs in middle age. To prevent further recurrence, the involved loop should be resected, preferably by the Mickulicz procedure.

Interparietal Hernias.—According to Lower and Hicken, interparietal hernia is a term used to designate a group of hernias that occur in the inguinal region between the various layers of the abdominal muscles and are classified according to the anatomic location of the hernial sac. Properitoneal hernia includes all those cases in which the hernial sac lies between the peritoneum and the transversalis fascia; 119 such cases have been reported. In interstitial hernia the sac lies between the transversalis fascia and muscle, between the transversalis and internal oblique muscles, or between the two oblique muscles; 348 such hernias have been reported. In superficial hernia the sac lies between the skin and the aponeurosis of the external oblique muscle. The authors have found reports of 123 cases of this type in the literature. In interparietal hernia the sac may be monolocular or multilocular, the latter being the form present in the majority of cases. The usual clinical picture is that of intestinal obstruction. Treatment consists of early recognition and immediate relief by operation.

Digital Gangrene Following Nerve Block.—Garlock describes four cases of gangrene of the finger following digital nerve block anesthesia. After careful consideration of all the available facts, he states that the cause for this complication is undoubtedly a local one. The essential factor is a thrombosis of the digital vessels produced by the tight application of a narrow tourniquet which causes local tissue injury and marked slowing of the blood stream. An added factor may be the mechanical presence of the anesthetic agent distal to the point of constriction of the tourniquet. The prevention of complications of a similar nature rests with the care with which a tourniquet is applied about the base of a finger. A tourniquet of a narrow caliber should be avoided, and for ordinary purposes occlusion of the arterial supply is contraindicated. When a bloodless field is desired, a properly applied Esmarch bandage is more effective and safer.

Archives of Neurology and Psychiatry, Chicago

26: 1119-1366 (Dec.) 1931

First International Neurological Congress. B. Sachs, New York. —p. 1119.
*Cutaneous Sensory Fibers and Sensory Conduction. S. W. Ranson, *Chicago.—p. 1122.*
*Congenital Ectodermoses (Neurocutaneous Syndromes) in Epileptic Patients. P. I. Yakovlev and R. H. Guthrie, Palmer, Mass.—p. 1145.
*Subacute Combined Degeneration of Cord: Changes Following Liver Therapy: Histopathologic Study. C. Davison, New York.—*p. 1195.*
Iodobismitol in Treatment for Neurosyphilis. H. G. Mehrtens and P. S. Pouppirt, San Francisco.—p. 1220.
Effect of Removal of Stellate Ganglions on Wormwood Oil Convulsions in Cats. P. Cohen and L. Spekter, Rochester, N. Y.—p. 1226.

Cutaneous Sensory Fibers.—According to Ranson, there are good reasons for believing that pain is mediated by sensory fibers of the smallest diameter. In the spinal nerves of the cat the majority of these are unmyelinated. In the trigeminal nerve of the cat and in the spinal nerves of man a larger proportion of these fine fibers may have acquired myelin sheaths. It is the fine, nonbifurcating fibers of the trigeminal nerve that carry the sensation of pain from the skin of the face; these descend in the spinal tract of the trigeminal nerve, which is continuous below with the tract of Lissauer. These two tracts and the long column of gelatinous gray matter associated with them receive the pain fibers from the skin.

Ectodermoses in Epilepsy.—Yakovlev and Guthrie discuss three types of congenital neurocutaneous syndromes (Recklinghausen's neurofibromatosis, Bourneville's tuberous sclerosis and angiomatosis of the brain with trigeminal nevi) and present a series of fourteen case records illustrating the association of these syndromes with mental defect and epilepsy. All three syndromes exhibit remarkable parallelism in their clinical and pathologic manifestations. All three conditions are the result of congenital maldevelopment bearing electively on the organs of ectodermal derivation: nervous system, eyeball, retina and skin. The ectodermal origin of developmental anomalies in these conditions is evident from the tendency of congenital lesions to a metameric distribution in the skin and in the nervous system. However, in the case of vascular nevi the distribution of nevi seems to correspond with areas of sympathetic innervation rather than with true metameres, suggesting thus that this congenital vascular anomaly may have its origin in some developmental defect of vasomotor innervation. The relationship of these lesions to the process of folding and of differentiation of embryonal sheets and to the primitive neural tubes is suggested by topographic predilection of the clinical and pathologic manifestations of the three neurocutaneous syndromes to the cephalic and caudal ends of the body. The malformations may bear more or less exclusively on the neuro-ectodermal tissues, as is the case in tuberous sclerosis and in the so-called central Recklinghausen's disease, or may be confined to the mesodermal element such as blood vessels, as is the case in angiomatosis of the brain. However, the mesodermal hyperplasia (connective tissue, fibroblasts and blood vessels) is present in the characteristic lesions of all three congenital conditions, developing either as a parallel associated malformation or as a secondary reaction. All three congenital syndromes have their common origin in a malformation of the ectoblast. Both clinically and pathologically, they all may be included in one group under the term of congenital ectodermoses. The three neurocutaneous syndromes arising on a common ground of congenital ectodermal malformation are not identical. They probably differ in the period of embryogenesis at which the disturbance occurs; they differ also in the predominance of one or other of the ectodermal structures involved and, therefore, in their clinical and pathologic manifestations; they differ also in the degree of participation of mesodermal elements; thus, the mesodermal element is most prominent in the vascular neurocutaneous syndrome, with regard to which the term congenital ectodermosis of vascular type (*ectodermosis telangiectodes*) seems to be justified.

Liver in Degeneration of Cord.—Seventeen cases of pernicious anemia complicated by subacute combined degeneration were studied histopathologically by Davison. Seven of the patients had been subjected to liver therapy. Clinically, there was apparent improvement in the neurologic signs and symptoms in only two of the treated patients. Histopathologically, all the treated patients showed progressive glial changes (gliosis). These changes were not observed in the untreated patients with subacute combined degeneration. The myelin sheaths and axis cylinders were not influenced by the liver therapy.

Illinois Medical Journal, Chicago

60: 441-520 (Dec.) 1931

Pernicious Anemia. W. P. Armstrong, Jr., Springfield.—p. 453.
Refinements in Surgery of Tonsils Including Electrosurgery. F. B. Balmer, Chicago.—p. 458.
Heart Lesions Caused by Chest Injuries. F. M. F. Meixner, Peoria. —p. 469.
Immune Serum for Treatment of Poliomyelitis. H. A. Orvis, Winnetka. —p. 474.
Intrahepatic Gallbladder in Adult, with Review of Literature: Case. O. M. Walter and A. Neiman, Chicago.—p. 478.
Facilities for Treatment of Mental Disease and Cost of Same. C. F. Read, Elgin.—p. 480.
Diagnosis: Clinical Demonstration of Classes of Mental Diseases. R. C. *Hamill, Chicago.—p. 483.*
Shall Mental Disease Come Under Public Health Regulations? A. H. Kegel, Chicago.—p. 486.
Treatment of Pyelitis in Children with Bacillus Coli Bacteriophage. G. M. Cline, Bloomington.—p. 493.
Errors in Diagnosis of Hyperthyroid Disease. I. E. Bishkow, Chicago. *—p. 497.*
Report of Case of Recurrent Hemorrhages into Vitreous (Eales' Disease?). W. R. Fringer, Rockford.—p. 499.
Outlook for Allergic Patient. S. J. Taub, *Chicago.—p. 503.*
Roentgen Diagnosis of Bronchiectasis. A. Hartung, Chicago.—p. 507.
Treatment of Gastro-Enteric Intoxication in Infants. J. Zahorsky, St. Louis—p. 510.
Postoperative Management of Abdominal Operations. C. D. Brown, Chicago.—p. 513.

Iowa State Medical Society Journal, Des Moines

21: 657-714 (Dec.) 1931

Dermatologic Clinic. J. F. Auner, Des Moines.—p. 657.
Preoperative Treatment and Care. C. Ryan, Des Moines.—p. 662.
Postoperative Care. J. P. Cogley, Council Bluffs.—p. 665.
Use of Pituitrin in Incomplete Abortion. A. L. Nielson, Harlan. —p. 670.
Iodized Oil Injection in Diagnosis and Treatment of Sterility. W. L. Downing and W. W. Larsen, Le Mars.—p. 672.
Metastatic Epidural Spinal Abscesses: Four Cases. F. A. Ely, Des Moines.—p. 675.
Intravenous Pyelography. L. E. Pierson, Sioux City.—p. 676.

Johns Hopkins Hospital Bulletin, Baltimore

49: 337-391 (Dec.) 1931

Recurrent Complete Heart Block: Report of Case Associated with Transient Bundle-Branch Block and Normal Conduction Between Attacks. E. P. Carter and D. McEachern, Baltimore.—p. 337.
*Typical Position of Myocardial Scars Following Coronary Obstruction. W. G. MacCallum and J. S. Taylor, Baltimore.—p. 356.
Vital Staining of Rabbit Carcinoma. C. Tilghman and F. C. Lee, Baltimore.—p. 360.

Myocardial Scars Following Coronary Obstruction.—MacCallum and Taylor present three typical photographs to show the contrast between the effect of obstruction of the anterior descending branch of the left coronary artery, of its left circumflex branch and of the right coronary artery. These are the common types although both arteries may be occluded and obstruction of other and smaller branches doubtless produces characteristic scars when this is not obviated by the collateral circulation. Obstruction of the anterior descending branch of the left coronary artery commonly results in scarring of the more anterior part of the interventricular septum, sometimes even extending through to the right ventricle, and of the apical and more anterior part of the wall of the left ventricle. In sharp contrast with this, the obstruction of the right coronary artery, and especially of the more distal portion which partly encircles the base of the left ventricle and sends branches downward to its wall, produces a scar and dilatation which begins sharply in the midline of the interventricular septum and extends backward behind the papillary muscles of the mitral valve to curve round on the more posterior part of the wall of the left ventricle. Scarring of the wall of the right ventricle seems to be rare and may be due to the more direct course of the branches of this artery which supply it. Obstruction of the left circumflex branch of the left coronary artery results in a scarring and thinning of the wall of the left ventricle in its more median portion, between the province of the left anterior descending branch and that of the right coronary. The interventricular septum is not approached. Thrombi formed in these sacculations may give rise to emboli which can pass into the branches of the aorta. If the scarring of the interventricular septum is such as to extend through to the endocardium of the right ventricle, thrombi formed there may give rise to emboli which would pass into the lung.

Kentucky Medical Journal, Bowling Green

29: 617-690 (Dec.) 1931

Routine Postpartum Care. Alice N. Pickett, Louisville.—p. 672.
Rat Bite Fever. J. A. Orr, Paris.—p. 676.
Acute Coronary Occlusion. E. F. Horine, Louisville.—p. 677.
Bladder Tumor. H. J. Farbach, Louisville.—p. 678.
Pain in Right Lower Quadrant of Abdomen. J. B. Lukins, Louisville.—p. 680.

Pennsylvania Medical Journal, Harrisburg

35: 155-222 (Dec.) 1931

Conservative Surgery of Kidney. J. D. Barney, Boston.—p. 155.
Present Status of Vitamins as Nutritional Factor in Infant Nutrition. F. T. O'Donnell, Wilkes-Barre.—p. 159.
Vitamin B Deficiency: Use in Nutritional Disorders. D. E. Berney, Scranton.—p. 161.
Relation of Irradiated Food Substances and Ergosterol Versus Cod Liver Oil in Childhood Nutrition. F. B. Jacobs, West Chester.—p. 164.
Undiagnosed Sinusitis. W. D. Chase, Bethlehem.—p. 167.
Cutaneous Diseases from Metabolic and Endocrinic Aspect. G. J. Busman, Pittsburgh.—p. 172.
Peritonitis in Children. H. T. Price, Pittsburgh.—p. 175.
Peritonitis of Tuberculous Origin. E. L. Eliason, Philadelphia.—p. 178.
*Peritonitis of Appendical Origin: Study of 1,000 Cases of Acute Appendicitis. H. L. Foss, Danville.—p. 182.

Peritonitis of Appendical Origin.—Foss calls attention to the fact that acute appendical peritonitis is causing more deaths in this country in individuals under 40 than is cancer, accounting for over 20,000 deaths each year, despite improved operative and postoperative technic and widespread propaganda for early diagnosis and treatment. About 50 per cent of the patients with peritonitis are given laxatives before admission to the hospital. The average length of time intervening between the onset of symptoms and surgical consultation is still too great. In the author's series it was four days. Immediate operation as soon as the diagnosis is made, the removal of the appendix, and ample tube drainage accurately placed constitute the essentials of treatment, while maintenance of water balance and the withholding of fluids by mouth are the chief details of postoperative care. Mortality depends largely on factors controllable prior to the patient's admission to the hospital, and of these, earlier diagnosis and omission of purgation are of particular importance. Comparative mortality statistics are of but little significance unless all the factors are considered, the chief of which is duration of time taking place between the onset of symptoms and the operation. The author believes that there is great need of further stressing the incalculable importance of early diagnosis and of making clear the simplicity, in nearly all cases, of making that diagnosis.

Public Health Reports, Washington, D. C.

46: 2973-3021 (Dec. 11) 1931

Notes on the Fumigation of Vessels: Preliminary Inspection; How Rats Escape; Increased Periods of Exposure and Other Miscellaneous Notes. C. L. Williams.—p. 2973.
Microscopic Examination for Intestinal Parasites of Seventy-Three Boys in National Training School for Boys, Washington, D. C. C. E. Baker—p. 2980.

Texas State Journal of Medicine, Fort Worth

27: 553-628 (Dec.) 1931

Clinical Neurology and the General Practitioner. T. B. Throckmorton, Des Moines.—p. 558.
Radiotherapy in Uterine Hemorrhage. R. E. Barr, Orange.—p. 565.
Auricular Flutter. E. H. Schwab, Galveston.—p. 567.
Primary Carcinoma of Lung: Case. A. E. Greer, Houston.—p. 574.
Prophylactic Use of Forceps in Labor. R. L. Grogan, Fort Worth.—p. 579.
Some Interesting Bronchial and Esophageal Foreign Body Cases. T. E. Fuller, Texarkana.—p. 585.
Ewing's Sarcoma. W. B. Carrell, Dallas.—p. 588.
Osteitis Cystica Fibrosa. J. W. Nixon, San Antonio.—p. 591.
Giant Cell Tumor. J. R. Bost, Houston.—p. 593.
Osteogenic Sarcoma. R. J. White, Fort Worth.—p. 596.
Metastatic Tumors of Bone. R. G. Giles, Temple.—p. 600.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Physical Medicine, London

6: 179-198 (Dec.) 1931

*New Theory of Mechanism of Ultraviolet Irradiation in Rheumatic Diseases. L. J. Llewellyn and A. B. Jones.—p. 181.
Physical Therapy in Cardiac Disease. J. Gutman.—p. 184.
Physical Exercises in Prevention of Pulmonary Tuberculosis. G. D. Read.—p. 186.
Irregularity of Output from Tungsten Arc. B. D. H. Watters.—p. 188.
Treatment of the Asthmatic by Physical Exercises. A. H. Douthwaite.—p. 190.
Fango Baths of Acqui. Justina Wilson.—p. 191.

Mechanism of Ultraviolet Irradiation in Rheumatic Diseases.—Llewellyn and Jones stress the fact that "rheumatism" is primarily the outcome of an inborn tendency to "instability" of the heat or temperature regulating mechanism. The storage in the skin of the amino-acids tyrosine and cystine is of fundamental and probably etiologic significance. Tyrosine is the mother substance of which the temperature-regulating hormones thyroxine and epinephrine are chemical derivatives and also of melanin through the action of the ferment tyrosinase. Tyrosine enters into the formation of insulin, another heat-producing hormone, and the sulphur content of insulin is derived from cystine. The amino-acids tyrosine and cystine exist in free state in the blood and have been detected in the sweat. The blood content of tyrosine and hence potentially of thyroxine and epinephrine is increased by ultraviolet irradiation.

British Medical Journal, London

2: 1019-1072 (Dec. 5) 1931

The Problem of the Stiff Joint. R. Jones.—p. 1019.
*"Avertin" in Gynecology: Record of 1,000 Cases. J. Young.—p. 1026.
Some Sialograms. L. N. Pyrah and P. R. Allison.—p. 1028.
Perforative Diverticulitis of Colon. S. N. Sennett.—p. 1031.
A Calculus in an Ectopic Kidney. J. L. Davies.—p. 1031.
Encysted Empyema. N. D. Patel.—p. 1032.

"Avertin" in Gynecology.—Young believes that, employed in a dosage which does not exceed 0.1 Gm. per kilogram of body weight, "avertin" is a safe drug. In this dosage it may suffice for minor operative work, but a supplementary inhalation anesthesia is usually required. Its advantages are: (1) ease, comfort and certainty of induction; (2) reduction of postoperative discomfort and sickness, and (3) reduction of postoperative pulmonary complications. In the author's series of 1,000 unselected cases there were no deleterious effects, either immediate or remote. There were five deaths in the series, and in no instance could the fatal issue be attributed to the "avertin."

Glasgow Medical Journal

35: 321-371 (Dec.) 1931

The Etiologic Factor of Injury in Disease. J. Patrick.—p. 321.
*Treatment of Pernicious Anemia by Injections of Liver Extract. A. W. Harrington and J. Fleming.—p. 345.

Treatment of Pernicious Anemia by Injections of Liver Extract.—Harrington and Fleming report the results they obtained with the intravenous and intramuscular administration of a liver extract in four cases of pernicious anemia. This form of treatment produces a rapid and effective reticulocytosis in from three to four days. In one case it caused a sharp reaction, which, however, was in no way alarming. The authors believe that the intravenous administration of liver extract should be reserved for severe cases and may obviate blood transfusion. Ordinarily the extract should be given intramuscularly. The injections should be discontinued as soon as effective reticulocytosis has occurred, and treatment continued orally.

Kenya and East African Medical Journal, Nairobi

8: 179-210 (Oct.) 1931

Some Remarks on Laboratory Medicine, with Especial Reference to Certain Common Investigations. R. S. F. Hennessey.—p. 200.

8: 211-238 (Nov.) 1931

Modern Treatment of Syphilis: Its Communal and Individual Aspects. J. H. Sequeira.—p. 212.
Etiology of Postvaccinal Encephalitis. P. A. Clearkin.—p. 224.
Incubation Period of Sleeping Sickness Illustrated by Two Cases of Trypanosomiasis Among Europeans. N. McLean.—p. 235.

Lancet, London

2: 1223-1278 (Dec. 5) 1931

Infant Mortality of Birth. T. W. Eden.—p. 1223.
*Hepatic Efficiency. H. Rolleston.—p. 1227.
Tests of Hepatic Function. E. C. Dodds.—p. 1228.
*Vitamin D, Deficiency, Dental Caries and Tonsillar Enlargement: Clinical Investigation of Some Late Effects of Rickets. Helen M. M. Mackay, with the Collaboration of S. F. Rose.—p. 1230.
*Blood Platelets After Splenectomy. J. F. Galloway.—p. 1235.

Hepatic Efficiency.—Rolleston believes that it is in acute rather than in chronic lesions of the liver that functional tests are likely to give constant evidence of impaired activity. In acute yellow atrophy, in which all or nearly all the parenchyma of the liver and presumably its functions are involved, the clinical picture usually gives sufficient data for the diagnosis, and the need for further tests may not be obvious. In the treatment of syphilis by arsphenamine preparations, evidence of impaired function in the excretion of bile—the presence of bile acids in the urine by Hay's test, and so-called latent jaundice by van den Bergh's test—is valuable by giving a warning that changes are taking place in the liver and so indicating cessation of the injections and the administration of dextrose, in order to avoid the more severe accidents of postarsphenamine jaundice. The methods have the advantage of simplicity and rapidity over the levulose test in routine work. In chronic ascites due to causes other than hepatic disease, such as tuberculous peritonitis and carcinomatosis of the peritoneum, negative results with functional tests, such as rose bengal, may be of use in diagnosis. The value of van den Bergh's test in connection with different forms of jaundice may be regarded as established. It is in ordinary portal cirrhosis that, in spite of many reports to the contrary, functional tests so often fail, especially when their help is most needed. The levulose and galactose tests have been much employed, but the compensatory power of the liver may vitiate the results, especially in latent cases. Urobilinuria, common in cases of structural change and functional disorders of the liver, provided bile enters the intestine, is not pathognomonic of any one disease of the liver and may occur when blood destruction is taking place in any part of the body.

Vitamin D Deficiency, Dental Caries and Tonsillar Enlargement.—The investigation of Mackay and Rose was confined to the effect, if any, on the teeth and tonsils of school children of vitamin D deficiency in infancy or early childhood. Forty-six children aged from 6 to 10 years, who were known to have had rickets in infancy or early childhood, were compared with forty control children of similar age. The authors have no knowledge that the diet of the two groups of children differed materially when early childhood was passed. Hence they do not claim that their control group consisted of children who had always had sufficient vitamin D, but only that in early childhood the available vitamin D for members of this group was much greater than for members of the rachitic group. Moreover, this difference was sufficiently marked to leave an effect at school age on the height, weight and bones of children of the rachitic group. These averaged 2½ inches shorter and more than half a pound lighter than the controls; moreover, one in four still showed deformities of the long bones, and one in five well marked chest deformities. The proportion of children with crowding of the permanent teeth was nearly the same in the two groups, but as most of them had only cut a small proportion of their permanent teeth, not much stress can be laid on this. Hypoplasia of the permanent teeth was almost confined to the rachitic group, 22 per cent of whom showed hypoplasia, which in 15 per cent was fairly severe. Since only one control case presented hypoplasia, and that slight, these results in children fall into line with the evidence that D deficiency in young animals produces defective dental structure. In spite of the very different incidence in the two groups of hypoplasia of the permanent teeth, the amount of caries of the permanent teeth appeared only slightly greater in the rachitic group than among the controls, and the difference is such that it cannot be held to indicate that vitamin D deficiency in early childhood is an important factor in determining the development of caries. The amount of caries of the temporary teeth was about the same in the rachitic and the control groups. Nor does D deficiency in early childhood appear to have influenced materially the tendency to the development of enlarged tonsils or of enlarged cervical lymph nodes. The two groups were roughly similar in these respects, both showing the usual high incidence of tonsillar enlargement and cervical adenitis seen in children attending a hospital outpatient department. The authors suggest that the very similar incidence of dental caries shown in those children who had had rickets and in the controls strongly suggests, if it does not prove, that vitamin D deficiency in infancy and early childhood, with consequent hypoplasia of the permanent teeth, is not the main factor in determining the incidence of dental caries. Such a deficiency may be one among a variety of etiologic factors, but if it were the predominant causative factor, the incidence of caries in the rachitic group should have been far greater than among the controls.

Blood Platelets After Splenectomy.—Galloway reports that removal of the spleen in three cases of thrombocytopenia led to an immediate and great increase in the number of circulating blood platelets. In the recorded cases they reached their maximum on the eleventh day. Subsequently they diminished in number but still remained much above the preoperative level even after twelve months and twenty-one months. More platelets reach the spleen in the splenic artery than leave it in the splenic vein. There is a great accumulation of platelets in the blood in the substance of the spleen. The observations suggest that the spleen is an important site for platelet destruction.

Medical Journal of Australia, Sydney

2: 635-666 (Nov. 21) 1931

Acute Appendicitis: Its Early Diagnosis. A. E. Lee.—p. 635.
*Achlorhydric Dyspepsia. J. M. Andrew.—p. 644.
"Pernocton" in Obstetrics. R. F. Matters.—p. 650.
An Occasional Cause of Trigeminal Neuralgia. H. S. Stacy.—p. 652.

Achlorhydric Dyspepsia.—Andrew states that there are many cases of dyspepsia, often overlooked, in which the test meal reveals diminution or absence of free hydrochloric acid in the gastric juice. The therapeutic test of administration of acid is of value in those cases which do not give an early and maintained response to alkali treatment when organic and reflex causes for the dyspepsia have been excluded. A confirmatory test meal, at least by the qualitative method, is useful as a guide to treatment. It is important to recognize the relation of achlorhydria to the preanemic state and the early spinal cord changes of addisonian anemia.

Practitioner, London

127: 605-704 (Dec.) 1931

*Scope and Limitations of Endocrine Therapy. S. Vincent.—p. 605.
Recent Observations on Pituitary Body. W. L. Brown.—p. 614.
Thyroid Extract as Therapeutic Agent: Some Indications, Results and Difficulties of Treatment. H. G. Hill.—p. 626.
Plea for Earlier Recognition of Thyroid Deficiency. H. C. Barlow.—p. 648.
Septic Meningitis. E. Watson-Williams.—p. 659.
Psychogenic Aspect of Dermatology. Mary Horan.—p. 675.
An Easy Way to Take Raw Liver. D. G. Falconer.—p. 686.
An Etiologic Classification of Anemias. R. E. Horsfall.—p. 689.
Postural Nasal Obstruction. E. R. G. Passe.—p. 692.

Endocrine Therapy.—Vincent summarizes the scope and limitations of endocrine therapy thus: The cases in which it is possible to employ a true endocrine therapy—artificially to take the place of the internal secretion of a gland—are those of the thyroid, parathyroid, pancreas (insulin) ovary, suprarenal cortex, suprarenal medulla, and the two parts of the pituitary. Of these, only one, the thyroid, is known to produce any effects when given by the mouth. The others must be administered by some other route. Epinephrine and preparations of posterior pituitary are chiefly used as drugs apart altogether from the question of internal secretion and substitution therapy. The anterior lobe of the pituitary, though it produces marked effects on growth when injected into animals, has not yet been demonstrated to be of service in the treatment of disease in the human subject.

Japanese Journal of Experimental Medicine, Tokyo

9: 403-507 (Oct. 20) 1931

Researches in Leprosy Published in Japan from 1890 to 1928. M. Nagayo.—p. 403.
Researches in Leprosy Published in Japan During 1929-1930. T. Tamiya.—p. 483.

Bull. et Mém. de la Soc. Méd. des Hôpitaux de Paris

47: 1536-1592 (Nov. 2) 1931

- *Bronchoscopic Diagnosis of Bronchopulmonary Cancer. A. Soulas.—p. 1536.
- Jaundice Caused by Phenylquinoline Carboxylic Acid. E. Chabrol, A. Busson and J. Mennecier.—p. 1541.
- Severe Jaundice with Acute Yellow Atrophy of Liver. E. Chabrol and A. Busson.—p. 1568.
- Blood Urea and Chloremia in Diabetes. F. Rathery, J. Sigwald and M. Dérot.—p. 1573.
- Hypoglycemia in Subarachnoid Meningeal Hemorrhage. F. Rathery, M. Dérot and J. Sterne.—p. 1578.
- Pyelonephritis Caused by Friedländer's Pneumobacillus. Mme. Bertrand-Fontaine and R. Parlier.—p. 1582.
- Tuberculous Polyarthritis Causing Hallux Valgus and Coxitis: Case. Mathieu-Pierre Weil, J. Delarue and V. Oumanski.—p. 1585.
- Roentgen Images of Azygos Lobe and Fissure. R. Debré and M. Mignon.—p. 1591.

Bronchoscopic Diagnosis of Bronchopulmonary Cancer.—Soulas asserts that in spite of the important acquisitions in roentgen diagnosis and classification of pulmonary cancer, recent publications still demonstrate the difficulty in such diagnosis. The diagnosis is rarely determined at the beginning but generally at the time when aggravation of symptoms or metastases have appeared. He reviews two instances in which bronchoscopy confirmed the clinical examination by reason of the endoscopic information and the biopsy; in four other instances the diagnosis was very difficult, but bronchoscopy without biopsy enabled him to make an exact diagnosis on the basis of the endoscopic signs alone. In four other instances endobronchial examination did not indicate the existence of a bronchopulmonary cancer but, on the contrary, signs of syphilitic stenosis, compression without bronchial participation, and suppuration. The author believes that bronchoscopy should not replace roentgen and clinical examinations but should follow and complete them. However, its function is primarily to confirm or establish an early diagnosis of bronchopulmonary cancer. Bronchoscopic diagnosis depends on a number of characteristic signs. It is not necessary to insist on well known clinical signs in budding, vegetating cauliflower-like bronchial tumors when it is easy to obtain histologic confirmation by biopsy. The endobronchial picture peculiar to cancer is characterized by deep red coloration, more or less stenosing infiltration of the mucosa, a shagreen aspect, an unusually hemorrhagic condition, anomalies in direction and form of the bronchi, stenosis of the orifices, stenosis of an endoparietal origin not due to compression, and especially the diminution or still more the abolition of the physiologic movements of the bronchi, which may progress to the point where the bronchus moves as a whole. This absence of expiratory contraction and inspiratory expansion and this abolition of peristaltic movements of the air passages are pathognomonic.

Journal d'Urologie, Médicale et Chirurgicale, Paris

32: 297-392 (Oct.) 1931

- *Diagnosis of Cystic Degeneration of Kidneys. J. A. Ratner and I. L. Zimhes.—p. 297.
- *Formation of Calculi in Gonorrheal Pyelitis, with Case Report. I. Mihalovici.—p. 305.
- Histopathologic Study of Neck of Bladder. M. Jungano.—p. 314.

Diagnosis of Cystic Degeneration of Kidneys.—Ratner and Zimhes state that cystic degeneration of the kidneys is a congenital defect difficult to diagnose because of its lack of specific symptoms, the evidence of a granular tumor in the lumbar region being the only objective symptom. One of the most frequent signs is polyuria, followed by oliguria as the condition gets worse and ending with anuria. The urine is of very low specific gravity and contains albumin. Early diagnosis is extremely rare, and the decisive points of the diagnosis are the finding of a unilateral or a bilateral tumor in the lumbar region and evidence of chronic nephritis. For several years the authors have made special roentgenographic studies of these cases and have found a characteristic general enlargement of the renal pelvis, frequently identical on the two sides. They consider roentgenograms as indispensable for the diagnosis when a patient presents evidence of chronic nephritis with the finding of the characteristic bilateral tumor, scarcely or not at all painful, granular, often mobile on palpation and moving with respiration. In case the tumor is unilateral the differential diagnosis will have to be made between a number of lesions according to whether inflammatory complications accompany the picture or not. In uncomplicated cases it will be necessary to eliminate first the neoplasms, especially when hematuria coexists, then the solitary cysts of the kidneys, the parasitic cysts, and hydronephrosis. Complicated cases with infections present the picture of acute pyelonephritis and perinephritis in which only an operation will reveal the anomaly, while a low grade infection with unilateral tumor will raise the suspicion of tuberculosis, calculus, and so on. In this case a bilateral roentgenogram will help to establish the diagnosis. The authors warn of the dangers in taking the roentgenograms, do not attach much importance to the method of introducing air in the perirenal tissues as a diagnostic aid, and mention the studies they are making on the injection of colored solutions in the veins in order to obtain a contrast picture.

Formation of Calculi in Gonorrheal Pyelitis.—Mihalovici states that the formation of calculi due to ascending infections is undoubted nowadays, and he reviews the principal factors for their production in acid urine: (1) the presence of a foreign body to serve as a nucleus for the precipitation of colloids; (2) the loss of crystallization form under the influence of colloids, called spheroidal formation of the crystals, as demonstrated by Keyser of the Mayo Clinic; (3) infection, which effects the same changes in crystals as obtains in number 2, again demonstrated by Keyser, using diluted cultures of Bacillus coli, and (4) retention of urine. The author gives the history of a patient with ascending gonorrheal pyelitis who expelled a calculus formed in the left ureter. Roentgenograms show that this ureter was constricted below the fourth lumbar vertebra and a ureteral catheter was stopped at 16 cm., corroborating the roentgenogram.

Paris Médical

2: 369-400 (Nov. 7) 1931

- Diseases of Children in 1931. P. Lereboullet and F. Saint Girons.—p. 369.
- Mortality in First Ten Days of Life: Reduction. A. Couvelaire, P. Lereboullet and Lacomme.—p. 384.
- Present Concept of Acrodynia. M. Péhu and H. Jarricot.—p. 390.
- *Meynet Rheumatismal Nodule. R. Debré and P. Uhry.—p. 394.
- *Phlyctenular Keratoconjunctivitis in Children. P. Woringer.—p. 398.

Meynet Rheumatismal Nodule.—Debré and Uhry assert that nodose rheumatism is rare in France in contradistinction to its incidence in Anglo-Saxon and Germanic countries. The nodules of Meynet are found in the subcutaneous cellular tissue and do not adhere to the skin, which retains a normal aspect. They are often revealed by simple inspection as prominences, but most often the nodules are not visible and are then recognized by palpation as small, round, spherical or oval, sometimes discoid, tumors of variable consistency; they are not usually soft but firm, and give the sensation of dense fibrous or even cartilaginous or bone tissue. Their size varies from that of a small grain to that of a large nut; sometimes they simulate tumors or, on the contrary, pass unnoticed until necropsy. In most cases they are very numerous. Their localization is variable with predilection for the top of the skull, particularly the occipital and parietal part, along the vertebral apophyses and the level of the scapula, and in the joints (knees, elbows, fingers). The authors advise that in examining a patient with Bouillaud's disease or chorea, clinicians should not neglect to pass the hand over the vertebral column and the occipitoparietal and scapular regions, in the search for Meynet's nodules to complete and confirm the diagnosis of the disease. These nodosities, usually free under the skin, may be attached to the tendons or even adhere to the subjacent bone. The development of the nodules may be brief (from three to four days), but generally it requires from three to four weeks. The two forms can coexist or follow each other and altogether the entire development does not exceed three to four months. Certain small periarticular syphilitic tumors in their early development resemble Meynet's nodules; however, their more frequent occurrence in adults and their evolution toward softening help in the differentiation. When the nodules adhere to the bone, one should eliminate the possibility of gumma, syphilitic periostitis or tuberculosis of the bone. The rheumatismal nodules present in the occipital region are hard to distinguish from enlarged lymph nodes, which are so frequent in this region in children. The authors believe that there is no connection between the subcutaneous rheumatismal nodules of Meynet and the cutaneous erythematous and painful nodules of endocarditis lenta. The nodules of Meynet are characteristic of acute articular rheumatism, acute rheumatismal polyarthritis or the disease of Bouillaud either when it accompanies a typical polyarthritic crisis or as it occurs in the course of an abortive form of disease. The appearance of Meynet's nodules has a great importance for prognosis, since it indicates that the child has a grave form of rheumatism with severe cardiac localization. One worker reports that among twenty-seven cases of nodose rheumatism there were twenty-six presenting cardiac lesions, while another reports eight cases with cardiac complications in all. The authors believe that Aschoff's nodule is the specific lesion of Bouillaud's disease; that the histologic formation of Aschoff's nodule represents the primary lesion, primordial to the nodule of Meynet; that Aschoff's nodule is a "rheumatismal follicle" and that the nodule of Meynet is a "rheumatismal nodule." The authors find that their bacteriologic examinations were negative, but pathology designates a singular relationship, hard to define, between endocarditis lenta determined by Streptococcus viridans and the disease of Bouillaud. There is a morbid family, dominated by the disease of Bouillaud, which includes rheumatismal chorea, the disease of Still-Chauffard, certain chronic fibrous rheumatisms of infancy and also, in a measure, endocarditis lenta.

Phlyctenular Keratoconjunctivitis in Children.—Woringer asserts that phlyctenular keratoconjunctivitis is of great interest in pediatrics since it is recognized that it has a relationship to tuberculous infection and is often an indication of latent tuberculosis. This entity has for a long time been considered as one of the essential characters of a scrofulous syndrome running parallel to cervical adenitis and chronic rhinitis. It is less frequently encountered in children's clinics than in the services of ophthalmologists. The author found that 85 per cent of the children with phlyctenular keratoconjunctivitis had a positive cutireaction, which usually indicates scrofula; in 15 per cent a relation to tuberculous infection was not demonstrated. In more than two thirds of the cases of keratoconjunctivitis with a recently positive cutireaction, roentgenography showed developing hilus lesions. In children with hilus lesions the mortality is not higher. Keratoconjunctivitis seems to have a favorable influence on the development of tuberculous infection. In old patients who have had a phlyctenular keratoconjunctival infection from two to six years previously, roentgenography demonstrates cicatrices and regions of calcification that are opaque to roentgen rays and denote a good recovery of the bacillary lesions.

Presse Médicale, Paris

39: 1573-1588 (Oct. 28) 1931

*Circulatory Anisergy. M. Villaret, L. Justin-Besançon and R. Cachera. —p. 1573.

Circulatory Anisergy.—Villaret and his associates deplore the fact that clinical studies of the circulatory system have been limited mostly to examination of the heart and the arterial tension when the different circulatory sectors present a relative autonomy that allows the regional and simultaneous establishment of very different degrees of arterial as well as venous pressure, to which they apply the name circulatory anisergy. They divide anisergies into arterial, venous and global. In arterial anisergies they measure simultaneously the recurrent arterial pressure of the extremities and the general arterial pressure, the recurrent arterial pressure being obtained by introducing a cannula in the distal end of an artery and thus registering the pressure maintained by the anastomoses. The pressures are interpreted relatively to those of the general pressure. Several tracings are given of disassociated pressures produced by the administration of suitable drugs, such as ergotamine tartrate to obtain intense peripheral vasoconstriction, α-methylacetylcholine to obtain peripheral vasodilatation, epinephrine after exhibition of yohimbine to obtain with perfect symmetry two opposing effects in two distinct regions, and choline derivatives to obtain dilatation of the retinal artery independent of depressive action on the arterial pressure. Consequently, hypertension or hypotension and dilatation of the retinal artery can be easily disassociated. The authors pass lightly over anisergies of the venous system and refer the reader to their recent book on this subject. They mention that in global anisergies there is, under certain conditions, a complete lack of total coordination between the variants of arterial and venous pressures. They conclude by giving examples of various anisergies and by stating that taking the pressure of a large artery is insufficient to afford adequate information on the general condition of the circulation.

Policlinico, Rome

38: 597-648 (Dec. 1) 1931. Medical Section

*Prophylactic Value of Diphtheria Toxoid. T. Pontano.—p. 597.
Familial Eosinophilia. M. Dalla Palma.—p. 605.
Menstrual Function in Exophthalmic Goiter. G. Meldolesi.—p. 620.
Influence of Sleep on Changes in Acid-Base Equilibrium in Kidney Patients. M. Pisa.—p. 638.

Prophylactic Value of Diphtheria Toxoid.—Pontano criticizes the means of control used for antidiphtheria vaccination in man with the Ramon toxoid. The author took up the study of the problem in an experimental manner and controlled the action of the toxoid vaccine in an infection of the guinea-pig obtained by means of a virulent diphtheria bacterium. He found that the toxoid is harmless even in large doses and always exerts an antitoxic vaccinating potency but that in order to obtain in the guinea-pig a truly vaccinating effect it is necessary to resort to enormous doses of toxoid. A single dose of 5 cc., although enormous with respect to the body weight of the animal, may attain a vaccinating effect. The vaccination in the experiment was only antitoxic. The author, who thinks that the greater danger from ordinary diphtheria lies in the seat of the disease (larynx) rather than in the toxemia, concludes that the animal experimentation does not justify the expectation that diphtheria will disappear or explain the disappearance of cases that, owing to the nature of the seat, are grave, but that it does justify the hope that grave toxemias will disappear if the doses of toxoid are notably increased at vaccination.

Riforma Medica, Naples

47: 1771-1808 (Nov. 23) 1931

Teletransmission of Cardiac and Pulmonary Sounds: Pende's Cardiopulmonary Teletransmitter. G. Santucci.—p. 1771.
Special Pathogenic Character of Colon Bacillus Isolated from Human Feces and Cultivated in Special Mediums. M. Sorrentino.—p. 1774.
*Prognostic Value of Oculocardiac Reflex in Tuberculosis. C. Scotti.—p. 1777.

Oculocardiac Reflex in Tuberculosis.—Scotti concludes from his researches on patients that the oculocardiac reflex is frequently absent in patients gravely ill and that such absence not only points to tuberculous toxemia but indicates nearly always an unfavorable prognosis.

Archivos de Medicina, Cirugía y Espec., Madrid

34: 1157-1176 (Dec. 19) 1931

*Intestinal Tuberculosis. H. G. Mogena.—p. 1157.
Studies on Bronchial Asthma: Observations on Pollen in Air of Madrid. C. Jiménez Diaz, B. Sánchez Cuenca and G. Canto.—p. 1163.

Intestinal Tuberculosis.—Mogena first recapitulates the gastro-intestinal disturbances likely to occur in tuberculous patients but not due to local tuberculous lesions and consequently of a more benign prognosis, such as dyspepsia with ptosis of the stomach and intestine in patients who have lost considerable weight and in women after pregnancy; dyspepsia produced by forced feeding; diarrhea resulting from achylia with its natural train of symptoms, from tuberculous toxemia and from deglutition of sputum. Intestinal tuberculosis is primary in from 5 to 10 per cent of the cases, especially in children, and secondary, as a rule, to pulmonary tuberculosis; infection occurs by deglutition of sputum and through the circulatory and lymphatic routes. Its site of election is the ileocecal region, where it attacks the solitary and the aggregated lymph nodules and surrounding tissue. The initial symptoms consist of slight gastro-intestinal disturbances, nausea, constipation or diarrhea, anorexia, vague pains in the abdomen and so on. The later constant symptom is diarrhea, up to the point of dehydrating the patient, abdominal pain in the right lower quadrant and borborygmus, all due to increased peristalsis and lack of absorption of ingested liquids. Alternations of constipation and diarrhea have great diagnostic value. Temperature changes are unreliable; loss of weight is rapid in cases in which diarrhea persists. The possible complications are hemorrhage, perforation and cicatricial stenosis. Hemorrhage is rare because the slow development of the ulcerations gives time for obliterating endarteritis or thrombosis to plug up the vessels. Perforation is more frequent and results in a localized peritonitis with adhesions or an abscess, with their individual symptoms. Stenosis may be slight and without perceptible symptoms but in rare cases may lead to intestinal obstruction. Tuberculoma may be present, especially in patients aged from 20 to 40 years, and although often difficult to diagnose, it will be recognized by its insidious beginning with more continuous painful sensations in the right iliac fossa; alternations of constipation with diarrhea; loss of weight and appetite; nocturnal pains, and the presence of a tumor, hard, irregular, painful on palpation, and mobile, which later may produce intestinal obstruction. The lower part of the colon and the rectum may be the seat of a chronic tuberculous hypertrophy, which can be recognized by digital examination and rectoscopy. The possibility of extension of the lesions to the peritoneum and the female genital organs is to be remembered. The diagnosis rests on the study of the symptoms mentioned and the finding of occult blood and soluble albumin. The discovery of the tubercle bacillus has little value in proving localization. Roentgenographic studies are valuable and should be made with the greatest care, the barium meal being followed up every hour from the time it leaves the stomach. The prognosis depends on the time factor and the extension of the lesion, the prognosis of the pulmonary lesion, and the general and social conditions of the patient so far as they will allow him to follow the necessary treatment. Treatment consists of the general treatment for tuberculosis with reliance on administration of vitamin C and D. Surgical treatment by excision or anastomosis is recommended in early cases when the general condition of the patient allows it.

Deutsche Zeitschrift für Chirurgie, Berlin

233: 545-656 (Nov. 24) 1931

Progress in Thoracic Surgery. R. Nissen.—p. 545.
Function of Resected Stomach. F. Spath.—p. 563.
Relations Between Resection of Gastric Cancer and Function of Liver. K. Taniguchi and T. Kuzuhara.—p. 577.
*Etiology of Pneumococcal Peritonitis in Children. W. Obadalek.—p. 587.
Local Anesthesia with 0.5 Per Cent Procaine Hydrochloride-Epinephrine Solution and Fatal Tissue Injury. Gebele.—p. 618.
Treatment and Prophylaxis of Postoperative Thrombosis and Thrombophlebitis with Elastic Compression Bandages. H. R. Paas.—p. 623.
Bacteriologic Aspects of Cholelithiasis and Histologic Changes of Liver During Same. C. Murayama.—p. 634.
Therapy of Acute Hematogenic Osteomyelitis. F. Spath.—p. 641.
Roentgen Diagnosis of Deep Lipoma. J. Reiss.—p. 648.
Paramedian Extraperitoneal Exposure of Lumbar and Sacral Sympathicus. W. Rieder.—p. 654.

Etiology of Pneumococcal Peritonitis in Children.—Obadalek points out that, whereas the older authorities assume an enterogenic etiology of pneumococcal peritonitis in children, in the French literature a hematogenic infection of the peritoneum is most widely accepted, and more recent studies, which revealed that girls were mostly affected and that they frequently also had a vulvitis, made an ascending infection from the vagina appear possible. However, the disease appeared also in boys, and it was thought that in them it originated in the appendix. The author is of the opinion that peritonitis in children is usually caused by invasion from the intestine. In order to corroborate his theory, he tested in animal experiments the feces of children with peritonitis. He reports the clinical histories of thirteen children with pneumococcal and of two with streptococcal peritonitis. In all of them the feces were examined for the presence of virulent micro-organisms by injection into guinea-pigs. Control tests were made in peritonitis cases caused by perforation of the appendix. Nearly all the guinea-pigs that were injected with the feces of children with pneumococcal peritonitis died, and those injected with the feces of the patients with streptococcal peritonitis died too. Necropsy of the animals revealed a diffuse peritonitis, and the pus yielded the same micro-organisms as the peritoneal exudate of the children. However, the guinea-pigs on which the control tests were made survived the injection of feces. From these observations the author concludes that in children the pneumococcal peritonitis and peritonitis of other bacteriologic origin are due to passage through the wall of the intestine. The clinical aspects of the disease likewise speak for the enterogenic etiology, for diarrhea is nearly always present, and in fulminant cases with early intestinal paralysis there exists in the beginning only tenesmus. The vulvitis is a secondary manifestation; it results from a fecal infection of the external genitalia. Pneumococcal peritonitis originating in the female genitalia is extremely rare.

Monatsschrift für Kinderheilkunde, Berlin

51: 241-320 (Nov. 24) 1931

Welfare Work for Juveniles. A. Keller.—p. 241.
Studies on Difference in Diphtheria Susceptibility in Children of Various Blood Groups. H. Nowak.—p. 257.
*Peculiarity of Human Milk: Investigations on Diastase. H. Schlack and W. Scharfnagel.—p. 273.
Significance of Constitution for Pathogenesis of Lymphatic Leukemia. Valerie Deutsch.—p. 280.
Sexuality During Childhood. K. Ochsenius.—p. 292.
Treatment of Congenital Torticollis According to S. Rosenbaum. K. Kundratitz.—p. 299.

Peculiarity of Human Milk: Investigations on Diastase.—Schlack and Scharfnagel found that if a small amount of raw human milk is added to a starch paste the latter becomes liquefied within a few minutes. This property of human milk to liquefy starch paste is destroyed by boiling. In testing cow's milk and milk from various other animals the authors found that these do not have the liquefying power; except in the colostrum from cows and in mare's milk it is present in rare instances. This liquefying property of human milk is due to its high diastase content. Milk from animals likewise contains this ferment but in much smaller quantities. The author points out that the liquefaction test is a simple method to differentiate between animal milk and human milk. The high diastase content of human milk is of significance for the nutrition of nurslings for the reason that the diastase content of the saliva is very small during the first weeks of life.

Münchener medizinische Wochenschrift, Munich

78: 2067-2106 (Dec. 4) 1931

Evaluation of Digitalis Preparations. B. Behrens, O. Gros and F. Hildebrandt.—p. 2067.
Estimation of Elasticity of Arteries from Blood Pressure Amplitude and from Beat Volume of Heart. E. Gabbe.—p. 2069.
*Treatment of Paroxysmal Tachycardia. M. Hochrein.—p. 2070.
*Prevention and Treatment of Pyogenic and Putrid Infection of Accidental Wounds. P. Clairmont and P. Meyer.—p. 2073.
Clinical Aspects of Neuroparathyrogenic Disorders. R. Schmidt.—p. 2075.
Apoplexia Uteri. S. Heilbronn.—p. 2077.
Remarks on Treatment of Lobar Pneumonia. F. O. Hess.—p. 2078.
Adenomyoma and Adenomyosis. E. Vogt.—p. 2080.
New Method of Palpation of Hypochondria. B. Laqueur.—p. 2083.
Prophylaxis and Treatment of Goiter with Fats and Proteins Containing Iodine. W. Fischer.—p. 2084.
Efficacy of Suggestion in Certain Forms of Hemorrhagic Diathesis and of Hemorrhages. G. Wiele.—p. 2084.

Treatment of Paroxysmal Tachycardia.—Hochrein reports experiences with a prophylactic treatment of uncomplicated paroxysmal tachycardia. In patients in whom the attacks could not be counteracted by the usual therapeutic methods (quinine, quinidine, strophanthin, and the like), it was possible to prevent the attacks by a combination of dietetic measures, psychotherapy and, especially, the administration of atropine. The method of treatment and the reaction of the patients are illustrated in two case reports. During a two year observation the efficacy persisted not only during the administration of atropine but also after it had been discontinued. The action mechanism of atropine on the cardiac function during paroxysmal tachycardia is briefly discussed.

Treatment of Infection of Accidental Wounds.—Clairmont and Meyer state that the infection of accidental wounds is often progressive, may necessitate incision and amputation, or may lead to putrid general infection and even end fatally. The mortality rate of the 2,476 cases of accidental injuries that were treated at the surgical clinic in Zurich during the years from 1920 to 1929 was 1.6 per cent. The most effective means to prevent wound infection is to take proper care of wounds as soon as possible. Superficial scratches, cuts, abrasions and tears should be given the same careful attention as deeper wounds, for the authors noted that pyogenic and putrid general infection and tetanus often resulted from these because of lack of proper care. A 5 per cent alcoholic solution of iodine was found to be most effective in the disinfection of wounds. If wounds require débridement it should be done according to Friedrich's method, with subsequent iodinization. But in spite of careful tending of a wound, infection may develop, and for this reason careful wound control and after-treatment are necessary. Whether an amputation is to be resorted to is largely dependent on the attitude of the individual physician. In gas gangrene the decision can usually be made sooner than in pyogenic general infection, in which the bacteriologic aspect is less alarming. If tetanus develops there is always the possibility of influencing the entire organism. The prophylactic application of tetanus serum and occasionally of gas gangrene serum is necessary especially in clinical institutions. However, a certain selectivity seems justified. It is often possible during the first aid treatment to recognize wounds that are predisposed to tetanus or gas gangrene. The authors think that omission of prophylactic serum injection cannot be considered malpractice.

Zeitschrift für Tuberkulose, Leipzig

63: 1-80 (Dec.) 1931

Clinical Experiences in Treatment of Apical Tuberculous Processes by Means of Apicolysis According to Lauwers. H. Bremer and P. Uhlenbruck.—p. 1.
Tissue Plombierung of Cavern Perforating Thoracic Wall. R. Nissen.—p. 20.
*Open Tuberculosis in Young Teachers a Menace to School Children. F. Klein.—p. 22.
Results of Crusade Against Tuberculosis. H. Matthies.—p. 32.
Clinical Observations During Administration of Spleen to Patients with Pulmonary Tuberculosis. R. Birstein and M. Ikonen.—p. 38.

Open Tuberculosis in Young Teachers a Menace to School Children.—Klein gives a detailed report of several class infections, which could be traced to teachers with open tuberculosis. All school children who had been exposed were subjected to clinical, roentgenologic and some also to serologic examinations. Positive tuberculin reactions were observed in from 72 to 73.5 per cent of the children and active pulmonary processes in from 14.7 to 26.9 per cent; among the latter there were from 5.9 to 15.8 per cent of fresh pulmonary infiltrations. The author stresses the necessity of health examinations for teachers and for the students in pedagogic institutes.

Zentralblatt für Chirurgie, Leipzig

58: 3121-3184 (Dec. 12) 1931

Treatment of Fractures. K. Mermingas.—p. 3122.
Lateral Abdominal Hematoma with Late Perforation into Intestine. E. Sehrt.—p. 3131.
Homogeneous Enostosis. F. Krauss.—p. 3132.
*Prevention of Recurrence After Hernia Operations. A. Adler.—p. 3136.
*Late Results of Cardiac Suture. I. G. Rufanov.—p. 3138.
Translocation of Tendons. H. von Baeyer.—p. 3140.
*New Method of Regional Anesthesia: Peridural Segmental Anesthesia. A. M. Dogliotti.—p. 3141.
Operative Treatment of Nonresectable Duodenal Ulcer. H. von Haberer.—p. 3145.
Lymphadenoid Polypi of Rectum. G. E. Konjetzny.—p. 3154.
Treatment of Incompletely Descended Testis. R. Göbell.—p. 3155.

Prevention of Recurrence After Hernia Operations.—Bassini's method is, according to Adler, the most widely employed operation in the treatment of inguinal hernia. However, Bassini's original method as well as its modifications are followed by recurrence in from 4 to 5 per cent of the cases. To prevent recurrences the author perfected a new plastic procedure which provides reinforcement for the Bassini sutures. He gives a detailed description of the technic, with illustrations of the various stages, and asserts that he employed it in a considerable number of cases. He considers it advisable, especially in large hernias, in recurrent hernias, in older persons and in patients with inferior connective tissue.

Late Results of Cardiac Suture.—Rufanov reports the clinical history of a man, aged 44. Examination revealed a scar in the region of the heart, through which the cardiac movements could be observed. A scar in the back indicated a previous resection of a rib, and the anamnesis revealed that twenty-eight years before the patient had suffered an injury of the heart, which necessitated cardiac suturing. The author describes this case not only because reports on the late results of cardiac suture are extremely rare but especially because the cardiac function is not impaired and the patient is free from pain, in spite of the fact that the pericardium was drained, which must have resulted in adhesions.

Peridural Segmental Anesthesia.—The aim of the new method of regional anesthesia described by Dogliotti is to utilize the advantages of the subarachnoidal spinal anesthesia and at the same time eliminate its disadvantages. In the course of anatomic studies the author discovered that the epidural space is comparatively wide and can be opened at any level except the occipital. He intended to introduce the anesthetic solution into this space at a level corresponding to the operative field, in order to bring it in contact with the nerve trunks in their course within the vertebral canal, between the dura mater and the intervertebral foramen, and within the intervertebral foramina. He then describes the approach to the epidural space. He points out that the first sudden decrease in resistance to the passage of the needle indicates that the ligamenta flava have been penetrated and that the needle has reached the epidural space. Careful observation of this sign gives the certainty that one has reached the epidural space and has not passed farther. In more than 100 anesthesias which the author induced in this manner, this was found satisfactory. But to be entirely safe it is advisable to employ the fractional injection of the anesthetic. The quantity injected first should not be in excess of the maximal dose that is given in subarachnoidal injection (from 0.08 to 0.1 Gm. of procaine hydrochloride in from 8 to 10 cc. of a physiologic solution). If the first injection is made in the subarachnoid space, an extensive anesthesia sets in from five to six minutes later. However, if, as intended, the injection is made into the epidural space, the anesthesia is only slight after five minutes has elapsed. If one is certain of this, an additional 20 cc. is injected, and after another two or three minutes has passed, another dose of from 20 to 25 cc. is injected. The total amount should be from 50 to 60 cc., which is injected in three portions. During the injection the patient should lie on the side on which the deepest anesthesia is desired. The anesthesia generally develops ten minutes after the second injection. After fifteen minutes it is complete and it lasts from one to two hours. In evaluating the advantages of this method the author stresses the absence of hypotension, of paleness and of vomiting, and the fact that the pulse remains comparatively normal.

Zentralblatt für Gynäkologie, Leipzig

55: 3553-3616 (Dec. 12) 1931

Experimental Investigations on Exclusion of Kidneys by Means of Roentgen Rays. F. Keller.—p. 3554.
*Diagnosis and Conservative Therapy of Ureteral Fistulas. B. Ottow.—p. 3563.
Observations on Eclamptic Inhibition Diuresis. H. Rossenbeck.—p. 3580.
Exfoliative Cystitis. W. Lindemann.—p. 3582.
*Epispadias as Cause of Incontinence. K. Seynsche.—p. 3585.
Total Prolapse of Urinary Bladder. A. Mandelstamm.—p. 3592.
Instillation Catheter for Anesthesia of Female Urethra. H. Högler.—p. 3595.

Conservative Therapy of Ureteral Fistulas.—Ottow, after pointing out that the majority of ureteral fistulas result from gynecologic or obstetric interventions, emphasizes the great significance of the differentiation between total and partial defects of the ureteral wall. It should be determined whether the continuity of the tube is entirely interrupted or whether there is only an opening in the wall. This is possible with the aid of cystoscopy. The differential diagnosis is significant especially for the treatment, because in cases in which there is only an opening in the wall one can treat the patients in a conservative manner, namely, by introducing a permanent catheter. Because of its simplicity, the author recommends the wider use of this conservative method. However, if this treatment fails, a surgical intervention is necessary.

Epispadias as Cause of Incontinence.—Seynsche reports the clinical history of a woman with considerable epispadias. He evaluates three surgical methods that could have been employed in this case and then shows why he combined vesicovaginal interposition of the uterus with direct muscular plastic operation. He shows that only the combination of the two methods produces conditions that correspond to the anatomic requirements of a vesical closure. The treatment resulted in complete recovery.

Nederlandsch Tijdschrift voor Geneeskunde, Haarlem

75: 5977-6060 (Dec. 12) 1931

Autochthonous Tropical Sprue in the Netherlands. G. J. W. Koolemans Beijnen.—p. 5977.
*Poliomyelitis Convalescents' Serum. A. Pondman.—p. 5986.
Vital Staining and Tumor Formation. G. A. Kreuzwendedich von dem Borne and R. E. J. Seldam.—p. 5999.
Roentgen Examination in the Gradanigo Syndrome. H. Burger.—p. 6003.

Poliomyelitis Convalescents' Serum.—Pondman explains, on the basis of the data found in the literature, how an opinion concerning the therapeutic value of poliomyelitis convalescents' serum was reached. Certain statistical data and opinions on the practical administration of the poliomyelitis serum are considered, and the author concludes that the serum, in more than one respect, has satisfied the original expectations. He discusses also the time of administration, place of injection and quantity of serum to be injected. He considers also the possibility of employing the convalescents' serum on a large scale.

Hospitalstidende, Copenhagen

74: 975-1002 (Oct. 8) 1931

*Angioma Venosum Racemosum of Pia of Spinal Cord. H. K. Lassen.—p. 975.
Subliminal and Autonomous Psychic Activity. I. Ostenfeld.—p. 985.
*Clinical Significance of Diastasuria: I. Normal Values in Persons with Normal Pancreas. J. Foged.—p. 991.

Angioma Venosum Racemosum of Pia of Spinal Cord.—Lassen's patient, aged 71, had had for five years mild but increasing symptoms of a nervous disorder, diagnosed as tabes dorsalis. Symptoms of compression of the spinal cord then appeared, with signs of ascending paralysis, and death soon occurred. Necropsy showed an extreme dilatation and intertwining of the subarachnoid vessels, mainly on the posterior side of the spinal cord, from intumescentia lumbalis into the thoracic region and, less intensively, to the lowest cervical vertebra. Histologically the changes seemed to consist of a hypertrophic thickening of the walls of the vessels resembling the primary stages in the formation of varices elsewhere. Corresponding to the extent of the extramedullary changes there were in the spinal cord extraordinarily marked degenerative processes in the nerve tracts in the white matter together with pathologic increase of the blood vessels in both the gray and the white matter. While tabes dorsalis could not be excluded, the main diagnosis was angioma venosum racemosum of the pia of the spinal cord. No syphilitic stigmas were found in the organs. The author states that there are in the literature thirty cases of venous dilatation causing symptoms of compression. With suspected angioma, operative treatment is advised. In nine of the twenty-one patients operated on, improvement or disappearance of symptoms followed.

Clinical Significance of Diastasuria.—On the basis of about 3,700 determinations of the urinary diastase in 287 patients with a normal pancreas and 841 with probably a normal pancreas, Foged states that the normal value of the diastase concentration may be as high as 200 and that in patients with acute or chronic abdominal disturbances a diastase determination of up to 300 cannot be regarded as a certain symptom of pancreas disorder.

74: 1003-1018 (Oct. 15) 1931

*Spondylolisthesis. J. M. Wollesen.—p. 1003.
Acetylcholine: Use in Arteriosclerotic Pain and Gangrene. E. Bloch.—p. 1014.

Spondylolisthesis.—Wollesen says that spondylolisthesis originates on the basis of a congenital defect in the vertebra accelerated by static conditions or by trauma. The insidious cases, which develop slowly during the course of months and years, especially call for the attention of the physician. The sensation of exhaustion in the lumbar region demands thorough consideration of the differential diagnostic possibilities, and if the pain resists medical treatment the diagnosis of rheumatism or neurasthenia cannot be accepted. Roentgen examination gives scanty information on the earlier stages of spondylolisthesis unless there is a prespondylolisthesis, but is of indispensable value in excluding other disorders. Treatment is operative, Albee's method for tuberculous spondylitis being used. The spinous process is split and a portion of the tibia introduced; the result resembles that accomplished by nature in fracture of the column with normally developed bones, when a bony connection is made by means of callus. In his case examination eight months after the operative treatment showed absence of aggravation of the spondylolisthesis, and the patient was wholly without subjective symptoms.

Nordisk Medicinsk Tidskrift, Uppsala

3: 737-752 (Nov. 21) 1931

*Present Status of Chemical Prophylaxis of Syphilis. P. Lépine.—p. 738.
*Pulmonary Tuberculosis and Diabetes Mellitus. E. Møller.—p. 742.
Third Northern Congress on Physiology. A. V. Sahlstedt.—p. 748.

Chemical Prophylaxis of Syphilis.—Lépine calls attention to the fact that the three most powerful antisyphilitic agents available play a part in prophylaxis apparently proportional to their curative ability, and in it each may be said to have its specialty: mercury for local prophylaxis, arsenic for general and rapidly effective protection, and bismuth for the maintenance of a deep immunity.

Pulmonary Tuberculosis and Diabetes Mellitus.—Møller reports the case of a patient, aged 52, with slight adiposity, diabetes mellitus, fibrocavernous tuberculosis of the right lung, tuberculous laryngitis, slight arterial hypertension, arteriosclerosis and slight myocardiac degeneration, the most important diagnosis being the tuberculosis and the next in importance the diabetes. He calls attention to the unfavorable effect of diabetes on pulmonary tuberculosis and to the particularly insidious onset of the tuberculosis in cases with diabetes; occasional stethoscopic examination of patients with diabetes is recommended. The origin of the tuberculous infection in this case is unknown, but a familial disposition is probable and the diabetes is thought to have played a part. A familial disposition to diabetes is also likely. In treatment of the tuberculosis, strict observance of the diabetic diet is urged, with general hygienic treatment.

Ugeskrift for Læger, Copenhagen

93: 1121-1148 (Nov. 12) 1931

*Aneurysm of Aorta. H. C. Gram.—p. 1121.
Considerations on Modern Therapy of Syphilis: III. (Seroreactions). O. Haslund.—p. 1125.

Aneurysm of Aorta.—The case discussed by Gram is that of a seaman, aged 60, with syphilitic infection dating back forty years. The main diagnosis is aortic aneurysm, with syphilis, arteriosclerosis, aortic insufficiency, myocardial degeneration, extrasystole, pulmonary hypostasis, albuminuria, and paralysis of the left recurrent nerve. The author warns that in syphilitic aortitis early diagnosis means everything.

93: 1149-1170 (Nov. 19) 1931

*Hypertension and Complications. C. Holten.—p. 1149.
*Case of Slow Lead Poisoning with Peculiar Etiology. K. Winge.—p. 1154.
Epidemic Myositis. E. Sylvest.—p. 1155.

Hypertension and Complications.—Holten presents a case of primary, so-called essential hypertension in a woman, aged 51, as a good example of the complication of secondary disorders of the heart, brain and kidneys seen in hypertension. The second aortic tone is accentuated, the heart is enlarged and there is grave degeneration of the myocardium. The apoplectiform attack with slight paralysis of the right arm and right facial nerve three months before the start of treatment is ascribed to a cortical or subcortical brain lesion with thrombosis as the probable cause. The only established sign of renal disorder was a slight albuminuria when treatment began.

Case of Lead Poisoning.—In Winge's patient with history of gallstone colic five years earlier and anemia, bradycardia and nervous disturbance since then, there had for the last half year been marked exhaustion with pain in the epigastrium, finally followed by pronounced pain in the epigastrium and nausea. The patient was found to have been employed for seventeen years as scorekeeper in a poorly ventilated rifle shooting gallery; the lead bullets, striking against the iron plate behind the target, where he stood, raised considerable lead dust. Examination of the gingiva and of the blood established the diagnosis of chronic lead poisoning. The earlier symptoms are thought to have been the first signs of the disorder.

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ETIOLOGY OF HEART DISEASE *

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While the knowledge of cardiac mechanics was insinuating itself into common medical practice there was a great lapse of time which today one cannot realize. It has taken many centuries to arrive at our belief that nothing happens without there being some cause for it. It is the influence of the accepted scientific spirit which now pervades our intellectual life. The successful practitioner of medicine must not only believe in the "causality principle," as Professor Bridgman[1] states it, but he must push his inquiry even further; for he must find the cause of the effects about which the patient complains and which the structural changes of the heart typify.

A few moments will suffice to recall some of the relatively important steps in the evolution of the etiologic point of view which has so slowly "crept on apace."

In the foreword of the translation of the Smith surgical papyrus, Breasted[2] says: "In this document, therefore, we have disclosed to us for the first time the human mind peering into the mysteries of the human body, and recognizing conditions and processes there as due to intelligible physical causes."

He finds a description of Imhotep, the earliest known physician, who lived about 3000 B. C. and Iry, a specialist in diseases of the digestive system, who lived about 2500 B. C. and whose tomb is at Gizeh. Iry was aware that the heart was the center and pumping force of a system of distributing vessels and recognized, too, the relation of the pulse to the action of the heart. He had begun to count the pulse some 2,500 years before a description of it appears in Greek literature. Herophilus of Alexandria in 300 B. C. used an Egyptian water-clock to count the pulse and, Breasted writes, "He was the one Greek physician who so nearly approached the discovery of the circulation of the blood that there are historians of medicine who believe that he achieved this discovery." But he "does not indicate a recognition of the circulation of the blood."

There is, then, a long interval, 1,928 years, from the time of Herophilus in 300 B. C. up to 1628 A. D., when William Harvey recognized and demonstrated that the blood circulated through the closed system of arteries, capillaries, veins and heart.

Thomas Sydenham (1624-1689) discarded the prevailing theories and philosophies and prided himself on his skill in observation of the patient. He encouraged the physician to practice measures based on the physician's own practical experience and he helped to develop the syndrome idea.

Then Leopold Auenbrugger (1722-1809) developed immediate or direct percussion (1761). In France, Jean Nicolas Corvisart[3] (1755-1821), an inspiring teacher, taught percussion and wrote an important book on the diseases of the heart.

Marie François Xavier Bichat (1771-1802), active as a surgeon and experimental physiologist, placed the science of macroscopic pathology on a firm basis.

René Théophile Hyacinthe Laënnec (1781-1826), in 1819, published his book on auscultation.

After this time there was a scientific method of inspection, palpation, percussion and auscultation by which to obtain the objective information and evidence of structural change with which to make a diagnosis.

In 1858, Rudolf Virchow (1821-1902) showed that the essential changes of diseased tissues were modifications of the normal cells of the body and not an invasion of extraneous cellular organisms, and cellular pathology began.

Pierre Carl Edouard Potain (1825-1901) developed the knowledge of acute and chronic heart disease and its relation to rheumatic fever.

In 1826, Pierre Adolph Piorry (1794-1879) of Poitiers introduced the method of mediate percussion with the pleximeter.

Louis Pasteur (1822-1895) proved the bacterium to be the pathogenic agent in disease.

Ottomar Rosenbach (1851-1907) emphasized the importance of the function of organs and considered the "treatment the same regardless of etiology," but he hoped that the disorder of function would be recognized before lasting anatomic change had occurred.

Moritz Heinrich Romberg (1795-1873) asserted that "We do not consider the mere placing of the disease in this or another column as the ultimate purpose of diagnosis. That is only the necessary premise. The more important thing is to determine to what degree each single patient is injured by his complaint and what cause has produced the momentary disorder."

Ernst Jendrassik (1858-1922), in a contribution to Lewandowsky's work on nervous diseases, said, "Only with difficulty has the etiological point of view gained acceptance in practical medicine. The principle of the etiological specificity of disease implies that every disease entity is produced by a quite particular cause, the different diseases cannot arise from the same cause, nor can different causes produce the same disease."

Knud Faber[4] says: "To the physiologist and the worker in the laboratory, morbid categories are subordinate concepts, but to the physician, to the clinician,

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* Read before the Section on Practice of Medicine at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 10, 1931.

[1] Bridgman, P. W.: The Recent Change of Attitude Toward the Law of Cause and Effect, Science 73: 539 (May 22) 1931.

[2] Edwin Smith Surgical Papyrus, translated by J. H. Breasted, 1930.

[3] Corvisart, J. N.: Essays on Diseases and Organic Lesions of the Heart and Great Vessels, 1806.

[4] Faber, Knud: Nosography, New York, Paul B. Hoeber, Inc., 1930, pp. 211, 212.

the reverse is the case: he cannot live, cannot speak, cannot act without them. . . . The final aim of medicine is to acquire a knowledge concerning etiology and concerning the consequent development of the morbid process so as to be able to adopt the right line of action."

It has required, therefore, the slow evolution of methods over nearly fifty centuries and the work of many physicians to bring us to the point at which it is possible to follow a definite procedure to inform ourselves sufficiently to devise a method of attack on the cause of some of the diseases of the heart.

It is now within the power of the practitioner of medicine to produce more knowledge and to shorten the time when it will be possible to know definitely the size of the problems of diseases of the heart.

There are three reasons of great importance alike to the patient and to the physician why the etiology of the heart damage should be determined: first, therapeutic; second, prognostic, and, third, prophylactic.

It is important to know whether the murmur heard at the apex arises from a rheumatic infection or from an accidental anatomic thoracic relation. It is perhaps more important to know whether an aortic insufficiency is due to rheumatic infection or to syphilis than to know that it is an aortic disease. It is most important to know whether an attack of congestive failure occurs because of a rheumatic heart, a syphilitic heart, a coronary sclerosis or a hypertensive heart.

Table 1.—*Cardiac Injury as a Factor in the Death of Sixty Per Cent of One Thousand Five Hundred and Forty-Six Patients* [6]

Cardiac Injury	Number of Cases		Per Cent
Congenital		170	18.29
Rheumatic		164	17.65
Carditis	135		
Chronic valvular	29		
Bacterial		67	7.21
Pericarditis	4		
Endocarditis	63		
Syphilis		80	8.61
Arteriosclerosis		448	48.22
Fibrosis	187		
Coronary arteries	191		
Infarct	70		
Total autopsies	1,546	929	99.98

At present the practicing physician considers etiology in what may be characterized as three different languages: the statement of the pathologist, the nomenclature of the International List of the Causes of Death, and the modern clinical diagnoses. These three experiences can and should be written in the same vernacular with increasing accuracy of form and definition. It is not as difficult as it may seem.

These three points of view and the possibility of making them contribute to the knowledge of etiology, as well as to the more accurate estimate of the elements of what is heart disease, seem sufficiently important to merit discussion at this time.

PATHOLOGY

The pathogenic factors that have been active in producing structural changes in the heart can be determined in most cases by the pathologist on gross and microscopic examination. Based on these structural observations, the common etiologic subdivisions may be stated as agents due to bacteria, the organism to be identified and named; congenital defects: rheumatic infection, carditis and valvular disease, the organism not known. Possibly the structural damage is due to a nonspecific reaction to the many strains of streptococci; syphilis; coronary artery disease, cardiac fibrosis and cardiac infarct.

How frequently is structural damage of the heart recognized from necropsy observations? Cabot,[5] in 1926, stated that a cardiovascular lesion is an important factor in 38 per cent of all deaths.

In a series of 1,546 necropsies at the Presbyterian Hospital in New York, Pappenheimer [6] found a cardiac injury to be important in 929, or 60 per cent (table 1).

The heart in the young is damaged by rheumatic infection in aproximately 90 per cent of all instances. Possibly the heart never escapes without some damage from an attack of rheumatism. From autopsy observations made by Pappenheimer, approximately 18 per cent of damaged hearts are so damaged.

Recently Karsner [7] has stated that "at least 20 per cent of patients with rheumatic fever exhibit endocarditis and 60 per cent of endocarditis is of rheumatic origin."

The other bacterial infections are often superimposed on the heart previously damaged by rheumatic infection or occur alone as a new infection but the named bacteria designate the nosologic position. Approximately 8 per cent of necropsies are so designated.

Syphilis, with or without valvular disease, involves the aorta in a few less than 9 per cent of postmortem cases.

The toxins of pathogenic organisms may produce degenerative changes of the parenchyma and secondary interstitial myocarditis.

Probably the most numerous victims of any etiologic group (because occurring in the older age groups) are those with crippled hearts due to the general systemic diseases resulting in arteriosclerosis of the coronary arteries and atheroma of the valves with or without hypertension.

Cabot,[8] states that "simple hypertrophy with or without arteriosclerosis and nephritis is vastly the commonest lesion—it makes 71 per cent of the whole." Rheumatic valvular disease with hypertension amounts to 82 per cent of his series. He states, too, that 77 per cent of heart disease is nonvalvular and that 22 per cent is valvular.

Dr. Pappenheimer's series show fibrosis of the myocardium (187), infarct of the myocardium (70), and coronary artery disease (191) to be 448, or 48.2 per cent of the series. All are diseases resulting from impaired coronary artery circulation.

The chronic diseases of the lungs may produce changes of the right side of the heart which may be severe enough to cause death by hypertrophy, dilatation and failure.

The cardiac conditions associated with thyroid disease are not accompanied by characteristic myocardial changes.

Congenital defective developmental conditions, which are not acquired diseases, may be considered to complete a practical systematic classification from the point of view of etiology.

The pathologic observations are at present the basic standard for the etiologic diagnosis.

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[5] Cabot, R. C.: Facts on the Heart, Philadelphia, W. B. Saunders Company, 1926.

[6] Pappenheimer, A. M.: Personal communication to the author, May 22, 1931.

[7] Karsner, H. T.: Pathology of Endocarditis, J. A. M. A. 96:411 (Feb. 7) 1931.

[8] Cabot: Facts on the Heart, pp. 26, 27.

VITAL STATISTICS

To understand more clearly how the knowledge of pathogenesis will enhance the value of statistical figures, let us look for a moment at a few tables of the mortality and morbidity of heart disease as now collected. It must be realized at once that the present accuracy of statistics and the diagnosis of heart disease as a cause of death have been relatively recent attainments.

Table 2.—*International List of the Causes of Death in 1919 and in 1929*

1919 Diseases of the Heart 87-90		1929 Diseases of the Heart 90-95	
87	Pericarditis	90	Pericarditis
88	Endocarditis	91	Endocarditis—acute
	Myocarditis (acute)		a. Specified as acute
			b. Unspecified (under 45)
		92	Endocarditis—chronic
			a. Specified as chronic and other valvular disease
			b. Unspecified (over 45)
		93	Myocarditis—acute
			a. Specified
			b. Unspecified (under 45)
			c. Myocarditis—chronic myocardial degeneration
			d. Unspecified (over 45)
89	Angina pectoris	94	a. Angina pectoris
			b. Diseases of the coronary arteries
90	Other diseases of the heart	95	Other diseases of the heart
			a. Functional
			b. Other and unspecified

It is startling, indeed, to discover that in the years 1804-1808 inclusive there were no deaths from heart disease recorded[9] in the city of New York.

It was in 1868 that a joint committee of the Royal College of Physicians, London, recognized the importance of a uniform nomenclature as a requisite for the registration of statistical facts. The registration of the deaths by causes the committee considered would give "light on the cause, hence, when recognized may be prevented, removed, diminished and treated." To recognize the cause in statistics it must be stated by the physician executing the certificate, and as yet few certificates of death contain the statement of etiology, as we understand it, of a cardiac death.

Largely through the efforts of Bertillon, some forty years ago, several countries adopted the International List of the Causes of Death. This was a step to learn numerically the size of the death injury from various causes but it was also a step toward the use of a nomenclature. Since the adoption of the list there has been a revision every ten years, but, as yet, the structural damage of the heart is considered for the most part as the cause of death and not the pathogenesis of that structural change. Thus there is a numbered paragraph for inflammation of the pericardium, of the myocardium and of the endocardium, with subheadings depending on the time factor, acute or chronic, and the arbitrary subdivision depending on age 45 (table 2). There is a number in the list for the symptomatic condition angina pectoris. There is one other number with the caption "Other diseases of the heart" which should be for the rare and infrequent diseases.

As a matter of record, however, in 1924 there were only 10.6 per cent of all heart deaths[10] in the United States contained in the three numbers, while 89.4 per cent of all the cardiac deaths were contained in the one number. In New York State in 1927[11] there were only 11.5 per cent of all the cardiac deaths in the three numbers and 88.5 per cent of the cardiac deaths in the one number. In New York State, since the 1929 revision, the inflammation of the endocardium and myocardium are rearranged under two groups with the time element of acute, chronic and age 45 as the separating classifications, but without any suggestion of etiology (table 2).

The first returns show the effectiveness of the new headings, causing a greater distribution and withholding deaths from the old number 90; for, DePorte[12] states, that "in January, 1930, 91.8 per cent of the deaths from heart disease were classed under other diseases of the heart"; but in January, 1931, only 4.3 per cent, the rest being shown under the new headings "chronic endocarditis and diseases of the myocardium."

In a study[11] of other diseases of the heart in New York State for 1922 and 1926 it was apparent that the physicians of the state could become "myocardial minded," for in 1922 chronic myocarditis was 34.1 per cent and in 1926 it was 48.6 per cent, an increase of nearly 50 per cent (table 3). Yet some ten years previously Cabot[13] found in his study of 3,000 necropsies that "myocarditis was recognized six times as often as it was present." However, about this same period, another physician[14] of international eminence had emphasized the importance of the efficiency of the myocardium and deprecated the great weight given to the valve damage. Perhaps his emphatic statement had the twofold effect of reducing the registered deaths ascribed to "valvular disease" from 23 per cent to 15.7 per cent and of increasing the assignment to myocarditis. It was almost certain that there was no such change in the actual incidence of myocarditis or valvular disease. Of these two conditions, the pathogenic agent was not stated but only the structural change. These tabular changes evidently result from the demands of "style," "vogue" or "fashion in medical thought" and the method of statistical exhibition.

Table 3.—*Other Diseases of the Heart* *

		Percentage									
Age Groups	Total Deaths	Chronic Myocarditis	Chronic Endocarditis	Valvular Disease of the Heart	Mitral Regurgitation	Mitral Stenosis	Cardiac Insufficiency	Diseases of the Aorta	Cardiac Hypertrophy and Dilation	Cardiorenal Diseases	Other Diseases of the Heart
1926											
All ages	11,862	48.6	12.4	15.7	3.6	1.4	4.8	2.1	3.4	0.7	7.8
Under 5	75	4.0	6.7	32.0	5.3	4.0	18.7	4.0	13.3	...	12.0
5 to 14	117	7.7	33.3	32.5	9.4	5.1	5.1	0.9	3.4	...	2.6
15 to 24	183	12.0	27.3	28.4	2.7	4.4	8.2	2.2	4.9	...	9.9
25 to 44	717	28.7	19.5	19.0	4.5	4.9	6.6	3.3	5.6	0.8	7.1
45 to 64	3,717	46.2	13.9	15.4	3.0	1.6	4.4	2.4	5.0	0.7	7.4
65 and over	10,049	52.4	10.9	15.0	2.9	0.9	4.6	1.9	2.6	0.7	8.1
1922											
All ages	11,509	34.1	13.0	23.0	4.4	1.3	5.1	2.5	4.8	1.3	10.5
Under 5	109	2.7	5.5	40.4	3.7	0.9	16.5	1.8	12.8	...	15.6
5 to 14	125	3.2	27.2	33.6	10.4	4.8	12.8	1.6	3.2	...	3.2
15 to 24	157	9.6	28.0	18.5	9.5	5.1	8.3	4.5	8.9	0.6	7.0
25 to 44	651	14.7	17.1	29.0	5.1	4.8	6.6	3.2	9.8	0.6	9.1
45 to 64	2,777	29.9	12.0	24.3	4.5	1.3	4.5	3.2	6.4	1.5	11.5
65 and over	7,686	38.8	12.2	21.8	4.1	0.8	4.8	2.2	3.7	1.3	10.3

* Number of deaths by broad age groups and percentage of deaths from each type, New York State (exclusive of New York City).

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[9] Pintard, John, City Inspector: Return of Deaths in the City of New York for the Years 1804, 5, 6, 7 and 1808, by order of the Common Council.

[10] Whitney, J.: Mortality in U. S. Registration Area.

[11] Report of Committee to Study Heart Disease of the New York State Medical Society.

[12] DePorte, J. V.: Monthly Vital Statistics Review, March, 1931. Sickness in Essex County, N. Y., New York State J. Med. **29:** 1310 (Nov. 1) 1929.

[13] Cabot, R. C.: The Four Common Types of Heart Disease, J. A. M. A. **63:** 1461 (Oct. 24) 1914.

[14] Mackenzie, James: Diseases of the Heart, New York, Oxford University Press, 1908.

In New York State in 1930 the deaths from heart disease were 34,867, or 23.6 per cent of all the deaths (147,372) in the state (table 4).

Table 4.—*Monthly Vital Statistics Review, New York State Department of Health, March, 1931* [12]

New York State—1930 Classification	Number	Per Cent
Deaths	147,372	.....
New York City	74,889	.....
New York State	72,483	.....
Heart (87-90)	34,867	23.6
Cancer	15,514	10.52
Pneumonia	12,881	8.7
Tuberculosis	8,139	.....

The deaths from heart disease were only 1,667 less than the sum of all the deaths from cancer, pneumonia and tuberculosis, yet the forms of heart disease cannot be separated into the proportions of various etiology.

In 1927, in New York State, DePorte [15] made a survey of the sickness as reported by physicians from certain districts of the state. He found that the reportable diseases made up 3.3 per cent, while the nonreportable comprised 96.7 per cent of the diseases cared for (table 5). Of the nonreportable diseases of cardiovascular importance, arteriosclerosis is 3.4 per cent and the group diseases of the heart is 4.3 per cent. Acute rheumatic fever amounts to 2.4 per cent and tonsillitis to 6.4 per cent. Thus, heart disease (4.3 per cent) exceeded all the reportable diseases (3.3 per cent).

Table 5.—*Morbidity Survey in Certain Districts of New York State in 1927* [15]

	Number of Cases	Per Cent
Reportable communicable diseases	3,212	3.3
Nonreportable diseases	94,857	96.7
Total	98,069	100
Of [illegible]		Per Cent
[illegible]		6.4
[illegible]		4.3
Arteriosclerosis		3.4
Acute rheumatic fever		2.4

Recognized heart disease (4.3 per cent) alone exceeds "all reportable diseases (3.3 per cent)."

In the same study DePorte found that, of all the causes included in the morbidity survey, all nonreportable diseases equaled 94.4 per cent but the deaths in that group were 77.6 per cent. Heart disease made up 7.2 per cent of all illness but contributed 34 per cent of the deaths in the same group (table 6). All reported communicable diseases comprised 5.6 per cent but account for 22.4 per cent of the deaths.

Table 6.—*Percentage Distribution of Cases in Morbidity Survey and of Mortality in the State, Exclusive of New York City, from Specific Nonreportable, and from all Reportable Communicable Diseases* [15]

All Causes Included in Morbidity Survey	Percentage of Cases in Morbidity	Percentage of Deaths
	100	100
[illegible]	94.4	77.6
[illegible]	7.2	34.0
[illegible]	2.7	0.3
Syphilis	0.5	0.7
All reportable communicable diseases	5.6	22.4

During the year October, 1927, through September, 1928, the physicians of a single county (Essex) [12] in New York State made reports of illness and mortality to Dr. DePorte of the state bureau of vital statistics. In this study (table 7) tonsillitis was 5.2 per cent, arteriosclerosis 3.0 per cent, diseases of the heart 2.8 per cent, and rheumatism 2.1 per cent, a total of 13.1 per cent. All reportable communicable diseases comprised 1.6 per cent.

During the months January to April, 1931, cases of heart disease reported by physicians to Dr. DePorte [16] in a survey of morbidity from heart disease in New York State, exclusive of New York City, showed the age distribution given in table 8.

Table 7.—*Sickness in Essex County, N. Y., Oct. 2, 1927, to Sept. 29, 1928* [12]

Disease		Number	Per Cent
All diseases		19,179	.....
[illegible]		312	1.6
[illegible]		18,867	100
[illegible]		976	5.2
[illegible]		569	3.0
[illegible]		535	2.8
[illegible]		121	.....
Syphilitic		9	.....
Other forms	75.7%	405	.....
[illegible]		392	2.1
[illegible]		87	.....
[illegible]		305	.....
			13.1

In this study rheumatic fever [17] and chorea account for 25 per cent of all the cases, 37.3 per cent of the cases under 45 and 16.9 per cent of those over 45. Chronic hypertension occurs in one in four (25 per cent) of those over 45 years of age.

Thus, up to the present, attention has been focused by the statisticians' point of view on the spectacular communicable diseases which must be reported, but the insidious diseases which have higher incidence of illness and death cannot, as yet, be analyzed. The etiology may be obscure, it is true, but with the increasing burden of deaths is it not time to devote more attention to determining the cause? Our ignorance can be decreased by stating etiology.

Table 8.—*Cases of Heart Disease Reported by Physicians, January to April, 1931, in a Survey of Morbidity from Heart Disease in New York State, Exclusive of New York City*

	Number	All, per Cent	Under 45, per Cent	Over 45, per Cent
Total	1,281	100	100	100
Rheumatic fever	294	23	32.8	16.5
Chorea	25	2	4.5	0.4
Syphilis	52	4.1	3.5	4.5
Other infections	158	12.3	20.2	7.5
Congenital	34	2.7	3.1	2.4
Chronic high blood pressure	207	16.2	1	25.6
Thyrotoxicosis	64	5.0	6.1	4.3
Other causes	189	14.8	13.4	15.6
Etiology unknown	213	16.6	12.2	19.5
Nervous heart	45	3.5	3.3	3.7

CLINICAL

The clinician surveys the patient and builds a syndrome from symptoms and objective conditions common to a single pathogenesis and compares the structural change pathognomonic of the etiology.[18] The arrangement of the descriptive diagnosis may well follow a systematic order as follows: etiology, anatomic condition, physiologic action and the functional classification of the patient.

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[15] DePorte, J. V.: Sickness in Rural New York, J. A. M. A. **92**: 522 (Feb. 16) 1929.

[16] DePorte, J. V.: Personal communication to the author (table 8).

[17] MacCallum, W. G.: Rheumatism, J. A. M. A. **84**: 1545 (May 23) 1925.

[18] Cohn, A. E.: Statistical Studies Bearing on Problems in the Classification of Heart Disease, Am. Heart J. **1**: 442 (April) 1926.

The case experiences of some observers have been tabulated and published and show interesting mutations in the relative proportions of the diagnoses as assigned to the etiologic factors.

In the Essex County, N. Y., study of DePorte [12] the simple classification showed: diseases of the heart, 538, or 100 per cent; rheumatism, 121, or 22.6 per cent; syphilis, 9, and other forms, 405, or 75.7 per cent.

In Boston, White and Jones,[19] in a study of 3,000 cases of heart disease divided by etiologic factors found (table 9): rheumatism, 30 per cent; syphilis, 2.9 per cent; arteriosclerosis 24.0 per cent, hypertension 22.2 per cent, angina pectoris 11.1 per cent, these three making up 57.3 per cent; effort syndrome, 9.5 per cent.

Patients seen in private practice show a distinct trend to the senescent degenerative heart condition, but patients attending the outpatient department show a much larger proportion of rheumatic damage.

In New York, Wyckoff and Lingg [20] found the conditions to be: rheumatic, 42.7 per cent; senescent, 22.2 per cent; syphilitic, 8.6 per cent, and other and unknown conditions, 26.4 per cent.

Table 9.—*Proportions of Heart Disease by Etiology in Clinical Work*

	New York Cardiac Clinics 1930		Clinics and Private			
			New York		Boston	
	Number	Per Cent	Number	Per Cent	Number	Per Cent
Congenital	169	4.39	...	....	...	....
Rheumatic	1,852	48.1	449	42.7	956	30.0
Syphilitic	204	5.3	91	8.6	94	2.9
Arteriosclerotic	329	8.55	234	22.2	764	24.0
Hypertensive	144	3.74	...	....	708	22.2
Unknown	828	21.51	187	17.8	...	....
Other	260	6.75	90	8.6	...	....
Multiple	64	1.66	...	....	...	....
Angina	.....	.....	...	....	333	11.1
Effort syndrome	.....	.....	...	....	302	9.5

The New York cardiac clinics, a cooperative study by fifty clinics using a common nomenclature and criteria of classification, with a case load of 14,353, in 1930, closed out 3,850 cases, and the tabulated report is as follows: rheumatic etiology, 48.10 per cent; syphilitic, 5.30 per cent; senescent (arteriosclerosis, hypertension), 12.29 per cent; unknown, 21.51 per cent; other, 6.75 per cent, and congenital and multiple, 6.05 per cent, making 100 per cent.

It is noteworthy that the group having an "unknown" etiology is 21.51 per cent of the whole. One must admire the courage of observers who admit inability to discover evidence of the etiologic factor. It leaves a seductive field to be explored by more intensive clinical investigation. In these groups from different regions of the country rheumatic disease varies from 22 to 48 per cent. Some of the difference may be due to regional, age and other influences. The total group, however, is small, yet it shows a large proportion of heart damage to be due to the crippling effect of rheumatic fever.

The clinical evidence in patients with impaired hearts may reveal the process to be active or inactive, and the position in nosology indicated by one of the following in the etiologic list:[21] 1, congenital; 2, rheumatic; 3, syphilis; 4, arteriosclerosis; 5, hypertensive; 6, unknown; 7, other—specify; 8, bacterial; 9, thyroid; 10, toxic; 11, anemia 12, emphysema; 13, neurosis; 14, psychosis; 15, trauma.

It will be accepted without doubt that, for a prognosis and rational treatment of the diseased heart, a knowledge of etiology is necessary. To prevent the damage of a healthy heart it is essential also to learn the way to prevent the transmission of the infecting agent. These reasons would seem so important as to justify all the trouble it may require of the clinician to make available with the aid of the statistician the statement of the magnitude of the problem and to make it possible, too, to show the effect that therapy directed toward the etiology may have.

SUMMARY AND CONCLUSIONS

There have been presented samples of observations concerning diseases of the heart from three points of view—a series of necropsies, a series of surveys by a bureau of vital statistics, and a series of clinical studies.

The necropsies are not comparable because there was no common factor—etiology. One series is a mixture of structural changes and etiology, while the second is etiology alone.

In the statistics of mortality and morbidity, the same lack of a common denominator destroys the validity of comparison.

The clinical studies are more nearly comparable since the classification is etiology, but in one of the two sets there is contained a symptomatic class which, however, can be included bodily in the arteriosclerotic group.

It appears that an enormous amount of work has been done by all these observers in collecting these figures, but the value of the results would have been greatly enhanced by the common denominator of etiology.

The etiologic point of view has required centuries to develop, but it now pervades the profession.

The profession has demonstrated that it can change rapidly and readjust itself to the use of a changing nomenclature.

The pathologist can differentiate and give the most accurate information of the etiologic factors causing structural damage to the heart.

The statistician of vital statistics, following the International List of the Causes of Death, is as yet unprepared in thought and unable from his data to give any information as to the etiology of the damage to the heart.

The clinician has formulated, adopted and applied a nomenclature and criteria of diagnosis founded on etiologic distinctions between diseases of the heart.

At present, rheumatic disease accounts for a fifth of the deaths from heart disease coming to necropsy and for a fourth to a half of the patients under treatment.

Coronary artery disease accounts for a half of damaged hearts at autopsy and about a fifth to a half of the patients cared for by physicians.

Syphilis at necropsy accounts for less than one in ten, and less than one in twenty for the clinician.

These three important etiologic groups can be differentiated and together they comprise about three fourths of the whole problem of morbidity and mortality of heart disease.

As all diagnoses and records depend on the practitioner, the conclusion seems justified that accurate

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19. White, P. D., and Jones, T. D.: Heart Disease in New England, Am. Heart J. 3: 303 (Feb.) 1928.

20. Wyckoff, J., and Lingg, C.: Etiology in Organic Heart Disease, Am. Heart J. 1: 446 (April) 1926.

21. Criteria of Diagnosis, New York Tuberculosis and Heart Association, 1929.

knowledge of the extent of etiologic groups will not be available until clinicians, pathologists and statisticians think of, diagnose, treat and record the diseases of the heart by a common nomenclature of etiology whenever, wherever and for whatever purpose records are made. Let etiology become the vogue and style.

Need this take 5,000 years?

121 East Sixtieth Street.

ABSTRACT OF DISCUSSION

Dr. W. H. Robey, Boston: A few days ago I happened to meet the chief of the Bureau of Vital Statistics at Washington, who told me that he had just received a diagnosis from a physician, stating that the patient had died of edema. On being informed that the mention of a symptom of that type was not sufficient to go into the records at Washington, the physician wrote back that he would not change the diagnosis—it was a very good one thirty years ago and, in his opinion, was just as good today. A short time ago I heard of a man, aged 84, who had died of mitral regurgitation. Of course, the murmur was not due to endocarditis but was the functional murmur of an enlarged left ventricle. Edema, headache, pain, and even angina pectoris are really merely symptoms. The pathologist has the best opportunity of making the correct diagnosis, but one cannot compare hospital practice with private practice in this respect. In hospitals the pathologist is at hand and the autopsy is more readily obtained than in private practice, when the physician often has to do without the autopsy and must make his diagnosis on a thorough history and physical examination. I think that some physicians are not inclined to go carefully enough into the history and are more apt to make the diagnosis on what they find in the heart; for example, a mere murmur. Mitral stenosis, for instance, is really not a disease but a symptom of rheumatic fever; likewise an aortic regurgitation may be a mere symptom, either of rheumatic fever or of syphilis. With regard to angina pectoris, there is in the minds of the present committee working on the classification of diseases a great question whether angina pectoris should be put in the list at all, it being a symptom of arteriosclerosis, of syphilis or of some other condition the etiology of which may be obtained by a careful history. In other words, statements concerning lesions in the heart which are placed on a death certificate should be qualified by the etiologic factor. A diagnosis of mitral stenosis, as I said before, should be qualified by a statement of the type of rheumatic infection which the physician thinks is the cause of it. If any progress is to be made in the therapy of heart disease and in prognosis, more attention must be paid to the etiology. Diagnosis must be made not on symptomatology but on etiology combined with a careful physical examination.

Dr. Allen H. Bunce, Atlanta, Ga.: Advance in the study of heart disease can be made only if every physician follows up his patients not only when they are alive, but also on the postmortem table. In Atlanta, at the Emory University Division of the Grady Hospital, where only negroes are treated, we have been able to obtain a large percentage of postmortem examinations. Our figures differ from those of Dr. Halsey's in that more than half of our cases are due to syphilis of the heart. Over a five-year period in a small group of private patients suffering from heart disease, we have averaged more than 90 per cent of postmortem examinations, and during one of these years we registered 100 per cent of postmortems in the group who died. Men practicing internal medicine owe it to themselves, to their patients and to the advancement of science to follow up their cases and see to it that postmortem examinations are made or, better still, to make the examinations themselves. I think that is probably the most important way in which we can advance the knowledge of heart disease. It can be done, because an enlightened public is anxious to cooperate with the doctor, and if we physicians don't do it, it is our own fault.

Dr. Robert H. Halsey, New York: Only recently have there been deaths from heart disease. From 1804 to 1808 in New York City there were no deaths from heart disease.

DELAYED LABOR CAUSED BY A SHORTENED OR SHORT UMBILICAL CORD*

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In all cases of delayed labor a shortened or short cord must be suspected. In 1922 I[1] reported the analysis of 35,712 cases, which showed a shortened or short cord once in every 5.5 births. From an analysis of the last 750 consecutive cases of my own, on which the following conclusions are based, there is a shortened or short cord (a cord complication) once in every 3.5 births. The usually accepted symptoms of cord complication are: an immediate recedence of the presenting part at the end of the uterine contraction; a recedence accompanied by the passing of urine;[2] umbilical souffle;[3] a gradual cessation of labor pains;[4] pain in the back; a desire on the part of the patient to assume the sitting posture, in order to exert more pressure in expulsion; localized pain at the placental site, due to traction on the placenta and partial inversion of the fundus. During the relaxation of the contraction, the placental site remains depressed until the presenting part recedes enough for the fundus to resume its normal form.[5] In my series the most frequent symptom is a delay in labor.

It is generally agreed that the time of labor for a primipara is from sixteen to eighteen hours for the first stage and two and one-half hours for the second; for a multipara, twelve hours for the first stage and from one-quarter hour to one hour for the second. However true a guide or standard the time element of labor may be, it is not sufficient, for it in no way describes the labor. Delayed labor is an expression used in contrast to the term "normal labor." The term "normal labor" in itself is indefinite; average labor would seem to be a term of better aptitude, for it admits of the idea of progression.[6] The view that the umbilical cord complicates labor is not new but dates back even to the time of Hippocrates.[7] The usually accepted causes of delayed labor are a disproportion, dry labor, uterine inertia, thick, tough membranes, and in primiparas a rigid, elongated cervix. From my experience it is possible to contradict these usually accepted ideas given as the chief causes of delayed labor and to substitute as the most frequent cause a shortened or short cord. In this series a delay in labor occurred once in every six births, of which 66 per cent were due to a shortened or short cord. Experience tends to put me on my guard to suspect a shortened or short cord as the chief cause of any delay throughout the whole progress of labor.

At the end of pregnancy the obstetrician is concerned with the position of the fetus. If it is not in the usual position, an effort is made to determine the possible

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 12, 1931.

[1] Gardiner, J. P.: Surg. Gynec. Obst. **34:** 252-256 (Feb.) 1922.

[2] Brickner: Am. J. Obst. **45:** 512, 1902.

[3] Holbach: Centralbl. f. Gynäk., 1908, number 10.

[4] Leith-Napier: Centralbl. f. Gynäk., 1883, number 43.

[5] Kaufmann, quoted by Peiser: Monatschr. f. Geburtsh. u. Frauenkr. **14,** 1899.

[6] Normal has taken on the significance of perfect. One says his heart is normal, signifying that it is perfect; one's lungs are normal, meaning they are perfect. But "average" is a term of more inclusive definition. As one uses the term normal temperature, meaning average temperature, so one should use the term average lungs for normal lungs, average heart for normal heart, and average labor for normal labor.

[7] Feiertag: The Danger of Shortened Cord for the Child, Inaug. Diss., Berlin, 1910.

cause. In cases of malposition it is assumed that there exists a disproportion between the fetus and the pelvic inlet. (In the few cases of monstrosities or tumor growths in the fetus or the mother, the disproportion or the obliteration of the inlet is the cause of the malposition.) I find that a cord complication is frequently the cause of a malposition. In a breech presentation, a transverse position, the head in either fossa, or a high floating head, a cord complication must be considered. It is generally agreed that it is best that labor start in a vertex presentation; so an attempt is made to convert any malposition into a head position. Oftentimes this effort at conversion, if there is sufficient liquor amnii, is rewarded with success, for the cord may be so placed as to slip along, permitting the head position. In the absence of other signs when conversion is not possible, a cord complication is no doubt the cause; it increases the gravity of the prognosis for the child. The seriousness of a malposition of the fetus due to a cord complication at the end of pregnancy is illustrated in the following case:

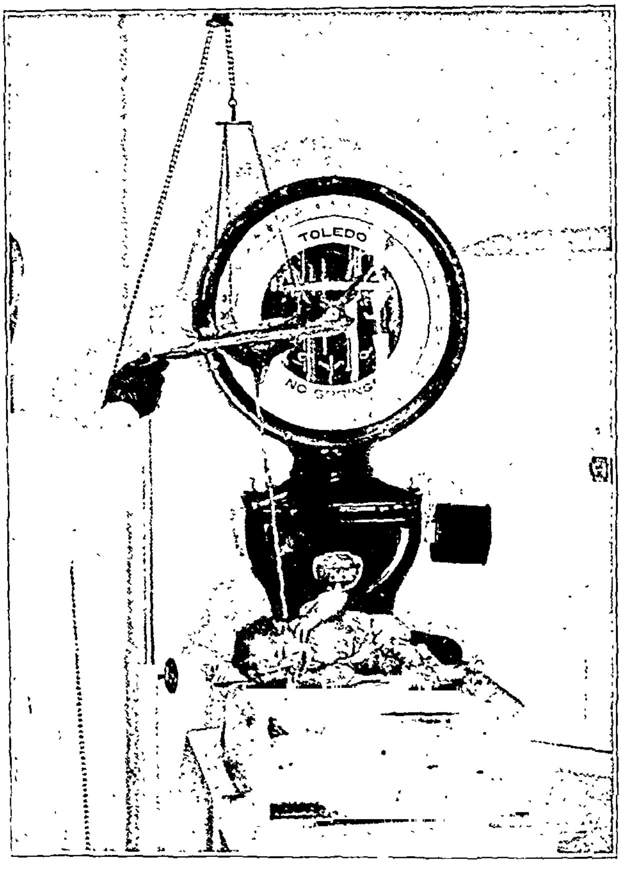

Fig. 1.—Method of estimating the traction on the umbilical cord by registering the loss of weight.

Mrs. R., a primipara, at term, entered labor with the fetus in a transverse position, which was maintained in spite of attempts at conversion into a head position. Therefore, as there were no abnormalities, the pelvis was roomy and there was a moderate amount of liquor amnii, a cord complication was suggested. The patient was permitted to go into labor but was prepared for a tentative cesarean section. The fetal heart rate was 140. Three hours later the fetal heart began to fail; there was no cervical dilatation and no change in position. A cesarean section was done immediately. The cord, with a coil about the neck, was taut from the placenta; the fetal portion ran from the umbilicus under the perineum up the back to the neck, there completing the coil. The length of the cord was 45 cm. The asphyxiated child was resuscitated, and the recovery of the mother and the child was uneventful. Though this case was observed as closely as possible, it is seen that the cesarean section was delayed almost too long.

There is little question that in many of these cases an elective cesarean section will be the easiest method of delivery for the mother, and the safest for the child.

FALSE LABOR PAINS

Just what factors are active as the primary cause of the onset of labor is not yet clearly defined. It would seem that the initiation of labor is dependent on glandular action. Substances from the placenta, the ovary and the pituitary have been extracted and tested and the consensus[8] favors the extract of the anterior portion of the pituitary body. Dubois[9] was very much interested in weakness of the labor pains and experimented with ergot but found that it was too dangerous for the child. It is probably true that the painless recurring uterine contractions or waves of pregnancy become painful at the beginning of labor. However, the painful contractions may cease, only to recur again at intervals, for days before labor starts, becoming the well established clinical phenomenon called "false labor pains." A shortened or short cord must be seriously considered, as accounting for the traction on the cord, interfering with the action of the labor-initiating substance, by preventing descent of the presenting part, thus depriving the lower uterine segment of its continuous, stimulating pressure. The following case illustrates this:

A quintipara, with relaxed vaginal outlet, fourteen days overdue, had had recurring pains in the back and in the lower part of the abdomen for six days. The head was engaged in the superior strait, back to the right, fetal heart to the left and below the umbilicus; the rate was 124. The pelvis was roomy and there was no disproportion. The cervix was soft (hydrated), patulous for 5 cm., and easily dilatable, with thick edges. During the contractions there was no progressive descent of the head. After the patient had been lying down for a few minutes the pains would cease. (A provisional diagnosis of a cord complication was made.) The patient was placed in the recumbent position, the shoulders and head were raised, and the thighs were abducted and flexed on the abdomen. In this position the contractions recurred at regular intervals. At each contraction the fetal head was pressed down on the hydrated, easily dilatable cervix, with still some recession of the presenting part at the end of the contraction. The fetal heart rate ranged from 115 to 145 and the child was of average size. After one and one-half hours of little progress, under light anesthesia, the hand was gently inserted and the cord was felt taut about the neck. An unsuccessful attempt was made to remove the cord. The membranes were ruptured and, further efforts failing to remove the cord, the forceps were applied and the head brought down to the vulva. The forceps had to be reapplied to bring the head over the perineum. The cord, buried deeply with a reversed coil about the neck, explaining the unsuccessful attempt at intra-uterine removal, was cut to relieve the traction. The placenta, preceded by a discharge of blood, followed in five minutes. The cord was 43 cm. long. It was possible to continue the progress of labor and to eliminate the "false labor pains" when the distance from the placental insertion of the cord to the point of coiling at the fetal neck was shortened, by raising the head and shoulders and flexing and abducting the thighs of the patient.

The increased muscular effort necessary to expel a child held back by traction on the cord has not been sufficiently stressed. This stretched cord was only 43 cm. long,[10] which accounts for the great traction produced. The placenta often separates, allowing the birth to take place, as happened in this case. Therefore, in a multipara with no disproportion, with the cervix open 5 cm. and easily dilatable, with an average size child, with recurring pains (false labor pains) for several days when standing but disappearing when lying down, a cord complication must be suspected, as the cause of the false labor pains, causing the delay in the onset of labor.

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[8] Allan, H., and Dodds, E. C.: J. Obst. & Gynec. Brit. Emp. **37**: 447-475, 1930. Fontes, J.: Presse *méd.* **38**: 1140-1143 (Aug. 23) 1930. Kraul, L.: Am. J. Obst. & Gynec. **21**: 301-319 (March 1) 1931.

[9] Dubois, P.: Gaz. d. hôp. **27**: 397, 1854.

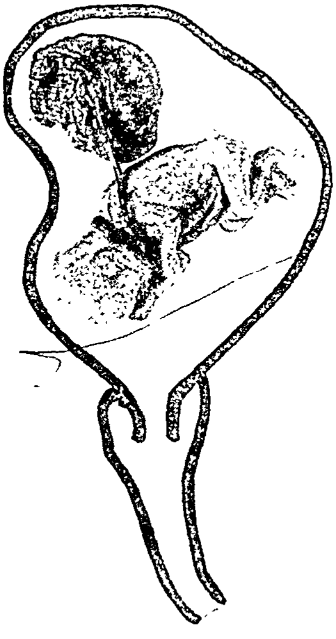

Fig. 2.—Before labor starts, in cord complications such as this, cesarean section must be considered and immediately performed if there is any variation in the fetal heart.

FIRST STAGE OF LABOR

During the first stage of labor the symptoms of a shortened or short cord are the most difficult to differentiate. Great effort is required at this time to diagnose the condition in the uterus. Once labor has begun it must progress continuously and uninterruptedly until the child is born; if it does not, the cause must be sought. It is a strange fact that the idea of a cord complication interfering with the progress of labor does not take form in the mind of the obstetrician until he is well along in experience.[11] The action of the cord is so subtle and cryptic that it baffles real diagnostic skill. Then, too, the self-evident fact revealed by a complicated cord at the very end of labor, with its surprise and with its demand for more or less immediate action, comes at the proper psychologic moment to center the attention not on the previous condition and action of the cord but on its immediate relief.

No doubt, this rather minor detail accounts for the fact that the problem has been missed, and a cord complication has not been one of general interest. In the past it has been an obstetric truism that as long as the membranes are intact the child is in no danger. There is no greater fallacy than this assumption. I have observed three varieties of cord complications which are fatal to the child in the early stages of labor, in which the membranes are intact. One is a reversed coil about the neck, the taut umbilical portion of the cord running over the placental portion at the front of the neck; during the first contractions of labor the chin is flexed on the crossing of the cord, compressing it against the sternal end of the clavicle, thus stopping the circulation of the cord and causing the death of the fetus. In another instance the vessels of the cord and placenta are so stretched by the traction on a shortened or short cord that the blood pressure is not sufficient to force the blood through, and the fetus dies. In the last a cord, caught between the fetal extremities, is compressed and obliterates the fetal circulation, as frequently happens with a large fetus or with one in which the labor is overdue. (There is still another form of shortened cord which produces a delay in the progress of labor: a cord with plications resembling the mesentery. The plications affecting a greater or lesser portion of the cord, causing the cord to be shortened, tear when there is sufficient traction. Logically a rupture should occur, but I have never been able to determine one from this cause.)

Matthews Duncan[11] became interested in the complications of the umbilical cord and went so far as to perform some experiments. He tested the strength of the cord and found that it would withstand a weight of about 8 pounds before rupturing. I have repeated this experiment and have found that some cords will bear a weight of 10 pounds or a little over, for a short time before rupturing. It is significant that the cords usually rupture at some point along their course. (While the weights were on, tension was noticed at the union of the cord and the placenta. Here the amnion folds were straightened out and the fibers were heard to crackle.) The umbilical vein seems to be the first to rupture, the jelly of Wharton ruptures, and the two arteries resist longest. The expulsive force of the uterus and the abdominal muscles reaches a pressure of about 50 pounds.[12] The resistance of the birth canal is equal to this pressure; however, the resistance is not required to be overcome at one time but by degrees. The pressure during the first stage of labor is much less while the uterus is acting alone.

In order to determine the amount of retardation, if any, occasioned by the slipping of the cord about the neck, a living child was placed on the scales with the cord coiled about the neck. It was found that the slipping of the cord about the neck caused a loss of over 7 ounces. It can readily be seen that a half-pound retardation from the slipping of the cord, in the first stage of labor, may have a very definite effect. In delayed labor, because the cord is long at birth, it cannot be taken for granted that there was no traction, causing the delay. It may be pointed out that the umbilical cord seen at birth is a dying or dead cord and not the virile, expansile cord of late pregnancy. As long as its circulation is maintained, the cord does not slip along as readily on itself as does the dead, relaxed cord. This is proved by the fact that a cord with a true knot, unless there is great traction, rarely gives rise to any trouble from compression; seldom is there tightening of the knot by sliding on itself, except

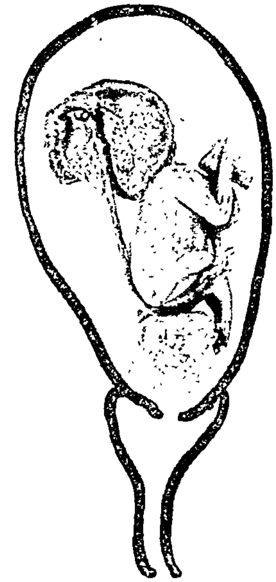

Fig. 3.—Near the end of the first stage of labor, the membranes still intact. Not only will traction on the cord cause delay, but the narrowing, because of the increased tension, may overcome the blood pressure in the umbilical vessels.

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[10] I have pointed out in a previous paper[1] that a cord, without producing traction, having a coil about the neck, must be 93.5 cm. long to allow the birth of the child. Kunze (Zentralbl. f. Gynäk. **51**: 1832-1838 [July 16] 1927), in 12,000 cases of coiling, found that the average length was 66.5 cm. The comparison gives a very good idea of the frequency of traction in cord complicated cases.

[11] Duncan, Matthews: Tr. London Obst. Soc. **23**: 243, 1882. King: Tr. Am. Gynec. Soc. **11**: 485-491, 1889; Am. J. Obst. **26**: 307-319, 1892, **14**: 322-328, 1881.

[12] Braun von Fernwald: Wien. med. Presse **21**: 41, 1880.

after death, for the lateral expansion, caused by the blood pressure in the live cord, prevents it. If this non-slipping or limited slipping is true of the knot, it is even more true of a coil or loop about the neck where the space is limited, as the cord is more or less compressed during labor, between the chin and the chest, and, further, the skin is more resistant to the slipping than is the cord on itself.

In determining the amount of pull necessary to affect the descent, a living child weighing 6 pounds 10 ounces was placed on the scales. The cord, still attached to the child and to the placenta, was coiled once about the neck. When the placenta was lifted up, the scales registered a loss of 3 pounds 6 ounces before the pull would turn the child over. (It was possible to lift the child off the scales by raising the placenta. There was no sign of tearing at the umbilicus, placenta or in the cord.) In making an effort to duplicate the condition of the cord before birth, the cords of three children were clamped at the umbilicus and the vessels filled with fluid. (The injected cord lost 1 cm. in length in every 10 cm.) When the latter experiment was repeated by putting each child on the scales with the cord around the neck, there was a loss of a half to a pound more weight when the cords were filled than when the cords were relaxed, which would tend to prove that during labor there is more resistance from an active cord than from a relaxed cord after birth. The degree of delay varies directly with the amount of slipping of the cord, as the resistance increases the traction, especially during the first stage of labor when the expulsive force is not so great. A cord coiled about the neck may, then, be sufficiently long of itself, but, with most of its length on the umbilical side of the coil at the neck and with the placental side so short as to cause traction, delayed labor may result. The relation of the resistant to the expulsive force determines the progress of the labor.

There is never a time in any obstetric case when it is not necessary to know the rate of the fetal heart.[13] But in delayed labor, as the child is already in danger, it is inexcusable not to have constant knowledge of the fetal heart action throughout the entire course of the labor, since one is warned by that alone of approaching death. The only sign in some multiparas that a delayed labor exists and that a shortened cord is the cause is a slowing of the fetal heart rate. (The woman expects the labor, judging from her previous labors, to be over in three hours; all things tend to confirm her expectation, but, after six hours of active contractions, the birth is not yet completed. The fetal heart may give the only explanation.) The treatment to render depends on the condition of the cervix. If the cervix has not fully dilated and the mother is a primipara, at the first indication of a lowering of the fetal heart rate a cesarean section must be performed. However, in the case of a multipara near the end of the first stage or in the second stage of labor, with a hydrated, easily dilated cervix, the vaginal canal may be dilated, the dilation of the cervix completed and the child delivered. Whatever method is used, the child should be delivered within twenty minutes after the disturbance of the fetal heart rate is noticed.

SECOND STAGE OF LABOR

It is during the second stage of labor, or the very last of the first, that there is the greatest infant mortality as a result of cord complications. If these children are to be saved, the fetal heart must be observed very closely. One should be well trained in differentiating the intestinal sounds from the sounds of the fetal heart beat; especially is this a difficult matter when the fetal heart sounds are distant or when there is an increase in the mother's heart rate to 120 or 130. We are now passing through a period of "labor assisting"; to what it will lead, only the future will show; it has, however, already made a contribution to the field of obstetrics. Just as the work done on the pelvis by Michealis[14] and Litzmann,[15] Waldeyer,[16] Walcher,[17] Williams[18] and many others gave the impetus for better pelvic measurements, preparing the way for Sanger's work on cesarean section and the improvements that have followed for overcoming the difficulties at the pelvic inlet, so the study of the causes of delay in labor is preparing the way for the procedures which have for their purpose the shortening of the second stage of labor: Kristeller's[19] combination of expression and extraction, De Lee's prophylactic forceps and episiotomy, and Potter's podalic version. This era of "midwifery assisting" must not be confused with the usual interpretation of "accouchement forcé." "Labor assisting" has as its aim the protecting of the vital reserve of the mother, by warding off exhaustion from delay of labor and the making more certain the delivery of a live child. Frist[20] feels that early separation of the placenta is an important symptom in cord complications and suggests that the delivery be ended by forceps when the head can be reached, accouchement forcé when the cervix is 5 cm. dilated, and in other conditions cesarean section.

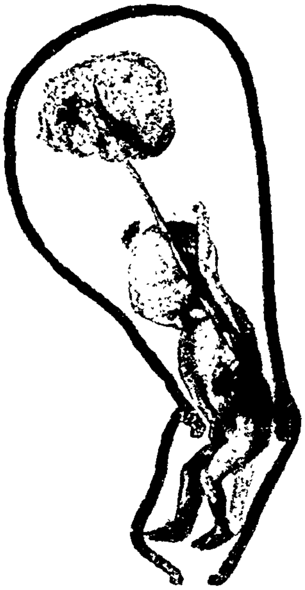

Fig. 4.—An extremely dangerous position for the child. With the cervix fully dilated and the arms of the fetus extended (especially in a primipara) there is great danger from compression of the cord, when the extended arms are brought down to allow the passage of the head through the cervix.

In the last and most readily recognized group of cord complications delaying labor, a coil or loop about the neck of the child is seen after the birth of the head. Of this condition a great deal has been written, for which much credit is due the early German obstetricians.[21] The trachea, by the embedded cord, and the fetal chest, by the structures of the lower birth canal, may be so compressed that, for the safety of the child, the cord must be cut to allow the completion of the birth. It is not good practice to pull, especially a taut cord, over the head of the child, as the vessels may be torn at the umbilicus and needless anxiety caused.

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[13] Freed, F. C.: Am. J. Obst. **14**: 659-666 (Nov.) 1927. (Young: Am. J. Obst. **74**: 853-854 [Nov.] 1916; good discussion).

[14] Michealis: Das enge Becken, Leipzig, 1851.

[15] Litzmann: Die Formen des Beckens, Berlin, 1861.

[16] Waldeyer: Das Becken, Bonn, 1899.

[17] Walcher: Zentralbl. f. Gynäk., 1889, pp. 892-893.

[18] Williams, J. W.: Am. J. Obst. **54**: 106-124, 1911.

[19] Kristeller: Monatschr. f. Geburtsh. u. Frauenkr. **29**: 337-387, 1867.

[20] Frist, Joachim: Med. Klin. **23**: 1216-1218 (Aug. 12) 1927.

[21] Credé: Geburtshilfe, Berlin, Horschwald, 1854. Ahlfeld: Arch. f. Gynäk. **14**: 221-224, 1879. Veit: Monatschr. f. Geburtsh., 1862, 19-20, 290. Winckel: Pathologie der Geburt, Rostock, Leopald's Univ. 1. behandlung 1869

Traction in shortened or short cord cases frequently causes neonatal asphyxia, with its potential possibilities. The fetal heart, if beating regularly at from 120 to 160 at birth, will continue one-half hour before it stops. I find four forms which admit of convenient classification: There is the narcotized child, whose condition is due to the sedative used during labor, in which case it is necessary to keep the lungs well aerated until respiration becomes regular. The asphyxiated child, whose condition is due to compression of the cord, is usually born in light asphyxia, asphyxia livida. A few are born in whom the heart is beating but who do not take the first gasp for from fifteen to twenty minutes. Also in this group is included the child in whom no heart beat is obtainable at birth but who with difficulty is resuscitated. To the third group belong those children whose hearts are beating and in whom *immediately after birth the accessory muscles of respiration* move violently, at intervals, but no air is taken into the lungs and thirty minutes later the heart has ceased beating. Necropsy reveals complete congenital atelectasis. To this group also belong those who are resuscitated but in whom the respiratory excursion is not full. Expiration is accompanied by a gentle, audible murmur. Enough of the lung is functioning to carry on, in some cases, for from ten to fifteen hours; then, as the red blood cells decrease, the respiratory surface is not great enough to carry on respiration, and, because of insufficient oxygen, the child becomes cyanotic; in the bronchi accumulates thick tenacious mucus, and in spite of artificial respiration and the administration of carbon dioxide the child dies. Other children will react and live. The other malformations which are incompatible with life may be included in this group. The fourth group of children appear to be asphyxiated but are suffering from the pressure of cerebral hemorrhage. The children may be dead at birth or die immediately after birth or may be resuscitated only to die later, as the hemorrhage increases; or the hemorrhage may be small, and the child be resuscitated and live. From this last group the lesson learned is to eliminate all strenuous methods of resuscitation.

SUMMARY

If there is a delay in labor due to a shortened or short cord with an interference in its circulation, there is great probability that, unless at the first sign of fetal distress some action is taken, the child will not be alive at the end of labor; the practice of obstetrics is thus in the class of emergency work. During the prenatal care period the family should be made to realize that any obstetric case is a potential emergency. There is a growing appreciation of this fact and maternity hospitals are increasing in number. The obstetrician must educate the delivery room group to realize that success in the treatment of these emergency cases is the speed under control with which the treatment can be given. The obstetrician, the delivery room group and the family must become emergency-minded if the needs of the child are to be adequately met. Everything must be in readiness to carry out the treatment decided on at a moment's notice. If the fetal heart shows signs of failure a cesarean section, a forceps application, or a manual delivery (depending on the progress of labor) should be begun. This technic is a strain on any obstetric service, but if the modern hospital is to keep pace with the development of obstetrics it must meet the requirements with intelligent and sympathetic assistance. The symptoms of shortened or short cord have been generally disregarded, for the reason, no doubt, that they are indefinite and, too, because they have not been adequately correlated.

CONCLUSION

The most definite and pronounced symptoms of a shortened or short cord are delayed labor and a *slowing of the fetal heart*.

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ABSTRACT OF DISCUSSION

Dr. Edward A. Schumann, Philadelphia: I feel that the shortened cord is a rather unusual disturber of labor, and the actually short umbilical cord, that under 40 cm., is quite unusual indeed. Sometimes, also, I feel that the cord around the neck acts rather as a prophylactic against asphyxiation, particularly in cases of difficult delivery in which the cord, instead of causing injury, is protected from pressure by being about the neck of the child. The most important point of Dr. Gardiner's paper is the treatment of cord complications, and the treatment of these conditions must depend not so much on the obstruction to labor as on the effect on the fetus. If then, as the result of careful and continuous auscultation of the fetal heartbeats, the child is found to be in difficulty and is threatened with asphyxia, I quite agree with the speaker that immediate delivery should be performed. The method is unimportant. If the cervix is sufficiently dilated and effaced, forceps or version may properly be used. If, however, complete effacement of the cervix is not present and dilatation offers any hint of difficulty, I should certainly, in the interests of the child, advocate cesarean section by a competent obstetrician in a competent hospital. That leads me to express another thought, the importance of fetal indication for cesarean section. Too often one regards only the maternal indications and permits a woman to go through the entire period of her gestation and the difficulties of labor, only to deliver a dead child as a result of a disinclination (in the interests of the child alone) to intervene by abdominal delivery.

Dr. Philip F. Williams, Philadelphia: I should like to cite three cases to substantiate what Dr. Gardiner has said and to bring forth one further complication that may arise. A secundigravida, whose first child had been delivered by forceps in the South and who was referred to me on her removal North, entered labor at term. It was evidently a false labor, and she left the hospital and went home. She came back a few days later for reexamination. The head was not engaged. On using the Hilles method of pressing the head into the pelvis, I found that the child evidenced his displeasure by strong fetal movements. Repeating the maneuver several times and listening to the fetal heart rate, I found a marked slowing. A short umbilical cord was suspected, cesarean section was done, and a live baby was delivered with three coils of cord about his neck. In a second patient, a husky young colored primipara of 18 in labor for twelve hours, with the head in the midpelvis, delivery by forceps was attempted, a pathologic short umbilical cord was present, and traction ruptured the cord at its attachment to the placenta. A profuse hemorrhage followed and necessitated the removal of the placenta manually in order to control the hemorrhage. In the third patient, an octigravida, the membranes had ruptured and the head was in the inlet. There was a history of previous normal deliveries. An injection of solution of pituitary was given to hasten the labor. In that instance an almost precipitate delivery followed during the stormy pains produced by the solution of pituitary. The cord was coiled about the neck twice, and the placenta came out with the child. The child was stillborn, and the woman had a profuse postpartum hemorrhage, evidently resulting from the abruptio placentae produced by traction on the cord. That necessitated packing. The latter two cases show that postpartum hemorrhage from one or the other circumstance, tearing the cord at the placenta or postpartum hemorrhage in a multigravida, may follow rupture of the cord, produced by traction on a short cord or a pathologically shortened cord.

HORSESHOE KIDNEY WITH ESPECIAL REFERENCE TO SURGICAL TECHNIC

REPORT OF CASES [*]

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Much has been written on the subject of horseshoe kidney, especially from the standpoint of its preoperative recognition, but no summary seems to have been made of operative technic appropriate to cope with the various anomalies encountered.

Therefore, in addition to reporting statistics from Bellevue Hospital showing both the postmortem and the surgical incidence of the condition, it seemed worth while to note the anomalies that are usually associated with horseshoe kidney and to discuss especially the operative methods of dealing with them. A brief discussion of the subject in general is also given.

The incidence of horseshoe kidney has been variously estimated from autopsy observations at from 1 in 300 to 1 in 1,100. In 16,735 autopsies performed at Bellevue Hospital during the past twenty-six years, twenty-six horseshoe kidneys were found, or 1 for each 643 cadavers. This is a somewhat higher average than is usually cited.

A. R. Thompson [1] states that according to autopsy statistics compiled by him the life span of the individuals having horseshoe kidneys is relatively short. Excluding patients who died in the first year, he found that 35 was the average age at death. In the Bellevue autopsy records, the age at death varied from 4 days to 75 years. Excluding the first year deaths, the average age was 43.

The following anatomic variations have been pointed out by various authors: [2] The isthmus connects the lower poles in about 90 per cent of cases and the upper poles in 10 per cent. But Renton [3] cites a case in which the two kidneys were united by renal tissue arising from the posterior part of the left kidney, both poles being distinct and unattached. In fusion of the upper poles, the suprarenals also may be fused. Such a case is cited by Kelly and Burnam.[4] Of added interest in this case is the fact that the aorta and vena cava passed in front of the isthmus. Two cases are reported in which the isthmus was found behind the aorta, and according to Colston and Scott [5] it lies between the large vessels in 10 per cent of cases.

Histologically, the isthmus may be composed of (1) fibrous tissue alone, (2) renal cortex alone, or (3) the entire renal parenchyma.[4]

The cortical isthmus is the one most frequently encountered. Robinson [6] believes that the fibrous isthmus exists in about 15 per cent of cases, but Thompson did not find it at all in his series of nineteen horseshoe kidneys examined post mortem.

Many authors cite instances of reduplication of the ureters and the pelves. The ureter may enter the parenchyma with little or no tendency to pelvic formation, and a few cases have been reported in which the ureter entered the isthmus. In these instances the pelvis was either lacking entirely or was only rudimentary in character.[5]

With reference to the blood supply in horseshoe kidneys, Kelly and Burnam make the following statements:

> The arterial branches enter the parenchyma mostly behind the pelvis. We find the arteries coming from the aorta either in one common trunk arising below the mesenteric arteries with several other smaller branches from the iliac arteries or else two separate trunks similar to the normal renal arteries only at a lower level. Besides these, however, there are nearly always smaller twigs coming from below and behind, derivations of the external iliac, internal iliac, etc.

In all the Bellevue cases found at autopsy, fusion of the two kidneys was by means of an isthmus connecting the lower poles. The most striking and most valuable observation in the cases, from a clinical standpoint, was that in one, otherwise typical of the majority of horseshoe kidneys, only one ureter, the left one, could be found. In this case death occurred at the age of 60. Other such cases have been reported, notably two by Thompson [1] and one by Thacher.[7]

DIAGNOSIS

Before the days of urography, a preoperative diagnosis of horseshoe kidney was comparatively infrequently made. Occasionally the condition was recognized by palpation (presumably in thin individuals) of an elongated, transversely running, suprapubic tumor which represented the isthmus. In a few instances, the shadow of the isthmus or of one kidney or both kidneys, with the isthmus shadow in whole or in part, suggested the preoperative diagnosis. In other instances, the proximity of the shadows of renal calculi to the spinal column was the only guiding factor in the recognition of the anomalous condition. And in still fewer instances the condition was suggested by Rovsing's sign; namely, continuous abdominal pain which is relieved on lying down.

But once urography made its appearance, the number of cases of horseshoe kidney recognized before operation rapidly increased, and now that hardly any examination of the upper urinary tract is considered complete without a urogram, the preoperative recognition of horseshoe kidney has almost become the rule.

Since the year 1918, approximately 400 kidney operations of all kinds have been performed in the Bellevue Urological Service. In this number there were four patients with horseshoe kidneys; the anomalous condition was recognized before operation by means of pyelograms in two of them. There were no postoperative deaths. At the time of the operation in the first case of this series, although urography was known it was not carried out as a routine measure. The diagnosis was made at operation. In the third case of the series, in which operation was performed only a few months ago, the preoperative diagnosis of horseshoe kidney was also missed. This patient appeared to be so sick on admission to the hospital that a complete urologic study was not deemed advisable. As will be shown in the case report which follows, it was felt that the patient's condition demanded an emergency operation.

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[*] From the Urological Service, Second (Cornell) Division, Bellevue Hospital.

[*] Read before the Section on Urology at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 12, 1931.

[1] Thompson, A. R.: Horseshoe Kidney, Guy's Hosp. Rep. **79**: 201-206 (April) 1929.

[2] Eisendrath, D. N.; Phifer, F. N., and Culver, H. B.: Horseshoe Kidney, Ann. Surg. **82**: 735 (Nov.) 1925.

[3] Renton, J. M.: Notes of Two Cases of Horseshoe Kidney, Brit. M. J. **1**: 601-602 (May 1) 1920. Robinson, quoted by Eisendrath, Phifer and Culver (footnote 2).

[4] Kelly, H. A., and Burnam, C. F.: Disease of the Kidneys, Ureters and Bladder, New York, D. Appleton & Co. **2**: 317, 1914.

[5] Colston, J. A. C., and Scott, W. W.: Horseshoe Kidney with Especial Reference to the Importance of Preoperative Diagnosis, J. Urol. **16**: 319 (Nov.) 1926.

[6] Robinson, B.: The Blood Vessels in Fused (Horseshoe) Kidney Based on the Study of Sixty Specimens and Illustrations, Lancet-Clinic **102**: 141-148, 1909.

[7] Thacher, J. S.: Horseshoe Kidney, M. Rec. **42**: 518 (Oct.) 1892.

What are the urographic characteristics on which a diagnosis of horseshoe kidney is based or which, at any rate, should arouse one's suspicions as to the presence of such an anomaly? A majority of the authorities agree on the following:

1. Kidney pelves which are closer to the midline and lower than those of normally placed kidneys.
2. Shortening of one or both ureters, not otherwise explained.
3. A tendency of the calices to point downward or toward the vertebrae.
4. In stereoscopic urograms an anterior curve of the ureters, due to the passing of the ureters in front of the isthmus.[5] This would naturally not apply to the small percentage of cases in which the ureters lie posterior to the isthmus.
5. Calices of bizarre shapes, absence of calices, or calices overlapping the pelvis.[8]
6. Bilateral roentgen catheter shadows which show first a curve outward from and then inward toward the vertebral column at their upper extremity.

Another point, mentioned by Wright in his discussion of two cases reported at the 1931 meeting of the American Urological Association, is the break in the continuity of the psoas outline shadow.

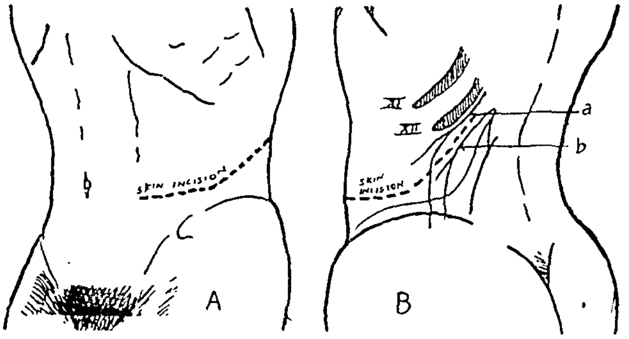

Fig. 1.—Skin incision (dotted line) for extraperitoneal approach to kidney. Note descending branch of the twelfth thoracic nerve (*a*), which usually crosses the incision; *b*, iliohypogastric nerve.

There seems to be little doubt that the unfortunate possessor of a horseshoe kidney is more liable than the normal individual to the onslaughts of certain ills that may befall humanity. This idea, however, is opposed by some. Apart from Thompson's and our own Bellevue autopsy statistics, which show the average age at death to be in the neighborhood of 35 or 40, the anatomic variations peculiar to horseshoe kidney would certainly seem to foster certain diseases of the kidney, especially those of a surgical nature. Included among these anomalies there are three that stand out preeminently:

1. Insertion of the ureter high into the kidney pelvis, which is usually found in an anterior position.
2. The passage of the ureter across the isthmus.
3. The presence of numerous aberrant vessels as a part of the blood supply.

To these may be added a fourth: viz., congenital ureteral stricture, mentioned by Eisendrath and his collaborators. But whether or not this condition is more common in the case of horseshoe kidneys than in normal kidneys is a question.

In pointing out the pathologic conditions most frequently encountered in operating on horseshoe kidneys, one can do no better than to cite the statistics of Eisendrath, Phifer and Culver. In 132 operative cases, collected by them up to July, 1925, they found the following various lesions and their incidence: renal calculi, 51; hydronephrosis, 34; tuberculosis, 13; pyonephrosis, 7. To these they added 11 cases in which operation was performed for pain alone and 16 unclassified cases. In these cases the different operations together with the number of times they were performed are as follows: heminephrectomy, 63; pyelotomy or nephrotomy, 35; symphysiotomy alone or combined with other operations such as pyelotomy, 12; pyelotomy or nephrotomy plus secondary heminephrectomy, 10; plastic operations or ureterolysis, 4; miscellaneous, 5.

Operations for the surgical conditions found in horseshoe kidneys are much the same as those for the same conditions found in congenitally normal kidneys. There are, however, certain variations in operative technic, certain anatomic difficulties to be surmounted and certain pitfalls to be guarded against. In order to save space, an attempt has been made to mention the surgical principles on which the actual technic of all different types of horseshoe kidney operations is based rather than to give a detailed description (except in a few important instances) of the actual technic itself.

The operator who has the preoperative knowledge that he is dealing with a horseshoe kidney is in a far better position to perform with facility and ease whatever operation may be necessary than he who stumbles on such a condition accidentally. To be forewarned is to be forearmed. This applies particularly to the surgical approach. By far the greater number of surgeons who have had considerable operative experience in horseshoe kidneys prefer the extraperitoneal to the transperitoneal route. With the employment of an adequate incision, the extraperitoneal approach has the following advantages:

1. Less likelihood of infecting the peritoneum, especially when dealing with tuberculosis, pyonephrosis or infected hydronephrosis.
2. Less likelihood of infecting the peritoneum, in cases of pyelotomy or nephrotomy or in heminephrectomy, should the stump of the isthmus subsequently secrete urine.

By an adequate incision for the extraperitoneal approach is meant one that will enable the operator to deal freely with the upper pole of the kidney and at the same time will permit of extension downward and forward in order to give free access to the lower pole and the isthmus. Such an incision is one which begins about 1.5 cm. below the last rib at a point about 5 cm. back from the tip of the rib, unless the rib is an unusually short one, in which case the incision is begun correspondingly farther forward. The incision is then carried forward and downward almost parallel to the border of the rib until it reaches a point about 3 cm. above the highest point of the iliac crest. Here it is carried transversely forward to a point midway between the axillary line and the outer border of the rectus muscle (fig. 1). If additional room is needed, as may be necessary for an adequate exposure of the isthmus of the kidney, it may be carried to the outer border of the rectus or even farther. The loin muscles, anterior abdominal muscles and fascia transversalis are split in the line of the skin incision. One usually encounters a descending branch of the twelfth thoracic nerve, which diagonally crosses the incision. When possible, this should be dissected free and retracted backward, since cutting or injuring the nerve may result in an area of anesthesia or hernia.

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[8] Rathbun, N. P.: Notes on the Clinical Aspects of Horseshoe Kidney, J. Urol. 12: 611-626 (Dec.) 1924.

Fischer[9] advises resection of the twefth rib as a routine measure, but the majority of operators do not find this necessary.

Eisendrath suggests that the peritoneum be displaced while the patient is in the lateral position, and that the patient then be changed to a supine position in order better to expose the pelvis and isthmus. This plan appears to be advantageous.

In contemplating heminephrectomy, the operation most frequently necessitated by the pathologic conditions found in horseshoe kidneys, the operator should first satisfy himself in regard to the following:

1. The function and size of the other half of the kidney.
2. Whether or not the other kidney has its own separate ureter.
3. Presence of accessory arteries and veins.
4. Whether or not the kidney which is to remain has ample blood supply.
5. The size and composition of the isthmus.

The first point concerning the ability of the supposedly normal kidney to support life is usually determined, of course, before the operation begins. Only in emergencies in which time or the condition of the patient has not permitted this point to be settled may it become necessary to get some idea of the size of the kidney by means of palpation. Not infrequently the operator is enabled to do this by extending his hand retroperitoneally across the midline. In other instances, it may become necessary either to make a separate extraperitoneal incision in the opposite flank or, what is better, to extend the transverse part of the original incision far enough forward to permit of exploration intraperitoneally. But, as Judd[10] has pointed out, it may even then be difficult to determine whether there is a sufficient amount of tissue which is capable of maintaining proper renal function. Therefore, if still in doubt about the opposite kidney, one should employ only conservative measures in dealing with the diseased kidney. At a later date, if a subsequent study of the opposite side should warrant it, the diseased kidney could be removed. To ascertain whether or not a ureter connects with the opposite kidney pelvis, it may be necessary to make an extraperitoneal loin incision over that kidney.

The third and fourth points dealing with blood supply are exceedingly important. Accessory vessels, especially the arteries, should be sought for, since failure to ligate any of them may result in a very embarrassing hemorrhage. This applies also to vessels which may come from below (iliac or mesenteric arteries) and enter the isthmus.

In ligation of the renal pedicle, care should be taken to see that the vessel or vessels tied do not supply the only branch to the half of the kidney which is to remain. In 13 per cent of sixty cases studied at autopsy, Robinson found a single arterial trunk for the isthmus, which divided, one branch supplying the right and the other the left renal mass.

Finally the isthmus should be carefully examined to determine as far as possible its relative parenchymal and fibrous tissue content. Since the great majority of the isthmuses are made up altogether of renal parenchyma, one should play safe when in doubt by considering the isthmus parenchymatous.

Division of the isthmus is usually the most difficult and in most instances likely to be the only difficult part in performing a heminephrectomy. Various methods are suggested. If the isthmus is wholly fibrous or contains only a small amount of kidney parenchyma, two clamps are applied on either side of the proposed line of incision, the isthmus is divided, and a continuous whipover stitch of catgut is employed over the clamp on the remaining segment, just as is done in the old hemorrhoid operation. Should there be oozing on withdrawal of the clamp, it is readily enough controlled by transfixation sutures or a ligature placed around the stump *en masse*. Whenever feasible it is well to cover the stump with renal capsule; if this is not possible a piece of muscle or fat should be sutured over it.

At times the isthmus is found to be as large as any other part of the horseshoe and composed entirely of renal parenchyma. Here one's difficulties may be manifold. In such a case it is obviously difficult to set down any hard and fast rules as to a course of procedure. Kümmell[11] recommends making a wedge-shaped incision just beyond the proposed place of severing the kidney while an assistant makes firm compression on each side. He then brings the lips of the incision together by a deeply placed reef knot suture and then along the edges employs continuous catgut.

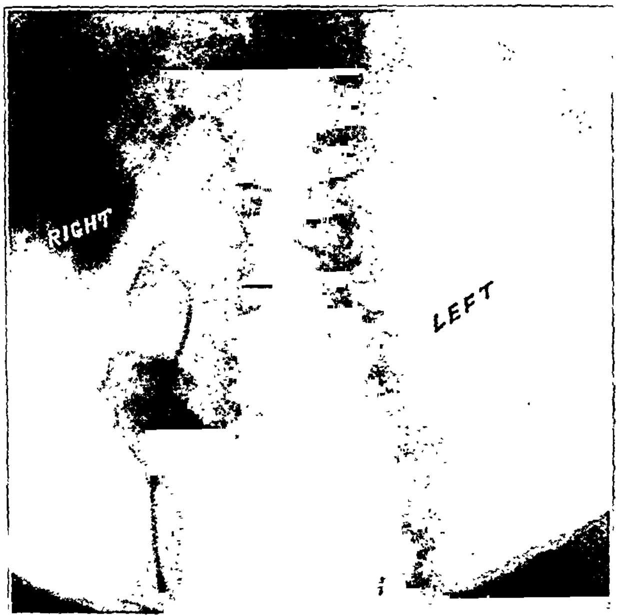

Fig. 2.—Note proximity of the lower end of the lower pelvis to vertebral column and partial rotation of kidney.

Scholl[12] only recently reported a case in which he employed the wedge-shaped incision for heminephrectomy in a case of calculous pyonephrosis. The isthmus was 5 cm. in diameter and was wholly parenchymatous. After closure of the kidney wound, a part of the capsule and surrounding fat were sewed over the stump. There was no subsequent urinary drainage.

If the isthmus is not too large and is sufficiently mobile, clamps may be applied and the bleeding controlled by the method suggested in dealing with the fibrous isthmus. Should there be any difficulty in inserting sutures preparatory to removal of the clamp on the remaining stump, it would seem advisable to leave the clamp in situ as suggested by Judd. He recommends leaving the clamp for a few days, "when the patient is large and there is considerable infection."

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[9] Fischer, Aladár: Ueber die Hufeisenniere und über Operationen an der Hufeisenniere, Ztschr. f. urol. Chir. **20**: 257-268, 1926.

[10] Judd, E. S.; Braasch, W. F., and Scholl, A. J., Jr.: Horseshoe Kidney, J. A. M. A. **79**: 1189-1195 (Oct. 7) 1922.

[11] Kümmell, quoted by Fischer (footnote 9).

[12] Scholl, A. J.: Horseshoe Kidney, California & West. Med. **33**: 745-746 (Oct.) 1930.

In one of our cases we employed the actual cautery for dividing the isthmus. However, in this particular instance the isthmus was largely fibrous and consequently almost any method would have served to control the hemorrhage. The cautery has been used also by Eggers[13] and other operators in dividing the parenchymatous isthmus.

In division of the isthmus one should remember that a renal calix may, though doubtless rarely, extend into this part of the horseshoe. Papin[14] accidentally incised a calix in this location. After the stump had been sutured, a reexamination of the pyelogram showed that the aberrant calix extended beyond the section through which he had cut. Following the isthmus farther, Papin discovered a second indentation through which he made his second incision. Israel[15] mentions the likelihood of causing a urinary fistula by cutting through a calix in the isthmus. But he warns against dividing the isthmus short of normal tissue, especially when dealing with tuberculosis and cancer.

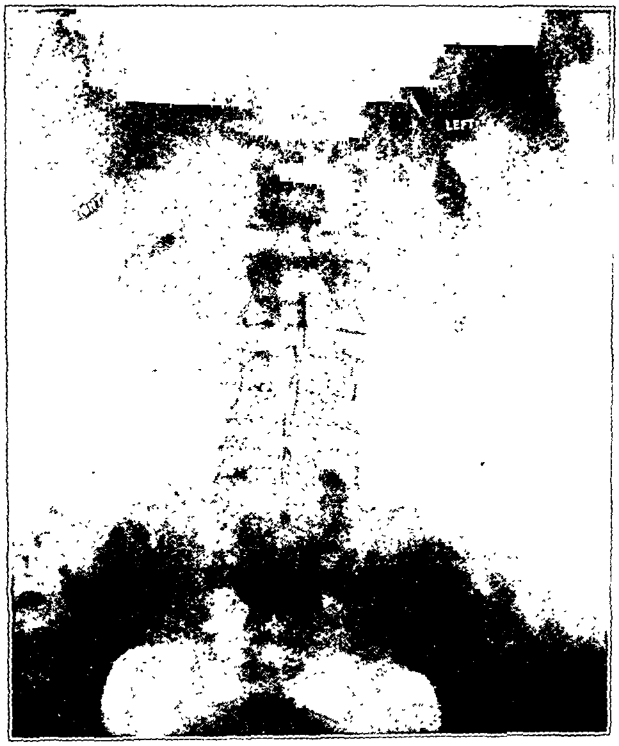

Fig. 3.—Intravenous urogram. Note presence of four pelves, two on each side.

In heminephrectomy of the rare upper pole fusion type of horseshoe kidney, it is well to remember that the suprarenals may also be fused. The dire consequences of complete suprarenalectomy need only be mentioned. It is also well to bear in mind that one may mistake at operation a fused kidney for a horseshoe kidney. Two ureters on the same side should suggest the former.

In heminephrectomy, because of the short pedicle and fixation of one pole (usually the lower), the operation may be made much easier by first emptying a distended pelvis of its contents (stone, pus or urine). This gives more room, renders the pedicle longer and enables one to clamp the pedicle with less danger of accidentally including the aorta or vena cava in the clamp. (Case 3 exemplifies this procedure.)

As for pyelotomy, nephrotomy and operations on the upper ureter, the precautions concerning accessory vessels are the chief ones to apply.

Extra care should be taken to control hemorrhage in performing pyelotomy or nephrotomy, especially the latter, for if a secondary operation should become necessary for the control of hemorrhage, it is likely to be more hazardous than the same operation primarily performed. (This is illustrated by case 4.)

In pyelotomy the incision is usually made anteriorly because this is the part of the horseshoe kidney pelvis ordinarily the more accessible. It is well to close the pyelotomy wound as securely as possible because of the possibility of extravasation of urine. Here the tendency of the extravasated urine to cross the midline of the body would obviously be greater than in a similar operation on the congenitally normal kidney.

Finally, a case reported by Swan[16] would be well to remember when dealing with intractable hemorrhage. His patient, having fallen on a horizontal bar, tore the lower pole and isthmus of the right half of a horseshoe kidney, discovered at operation. His chief symptom was hematuria. Because the kidney was too deep to suture easily and attempts to deliver it made the bleeding worse, Swan plugged the wound with gauze. When the gauze was removed three days later, there was no bleeding.

REPORT OF CASES

Case 1.—Since this case, which represents the first horseshoe kidney encountered during the period covered by the Bellevue statistics, was reported in detail by me[17] in the *International Journal of Surgery* in 1919, only the essentials are given in the following: A preoperative diagnosis of left pyonephrosis had been made in F. S., a man, aged 31. The presence of a horseshoe kidney was not discovered until the kidney had been thoroughly exposed by the oblique loin extraperitoneal incision. Heminephrectomy was performed. The isthmus, chiefly fibrous and about the size of one's thumb, was divided at its narrowest portion between two clamps. The stump was sutured, before the clamp was removed, with a whipover stitch, such as is employed in the clamp and suture hemorrhoid operation. No bleeding followed the removal of the clamp. Convalescence was uneventful.

Case 2.—In this case a preoperative diagnosis was made from the pyelogram. Heminephrectomy was performed because of suppurative pyelonephritis.

E. D., a man, aged 21, was admitted to the Bellevue Urological Service, May 1, 1923, on account of nongonorrheal left epididymitis. A few days after his admission, pain and tenderness developed in the right loin. A pyelogram on the right side disclosed two pelves and two ureters. Since bilateral pyelograms were made with much greater reservation at that time than they are today, the urogram of the left side was omitted. Because of the proximity of the lower pelvis to the vertebral column and because of the position of the calices, we believed we were dealing with a horseshoe kidney (fig. 2). Specimens from both pelves on the right side showed pus cells, those from the upper pelvis being in clumps while those from the lower pelvis were only scattered. The left ureteral specimen likewise showed a few scattered white blood cells.

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[13] Eggers, H.: Zur Chirurgie zur Hufeisenniere, Ztschr. f. Urol **9:** 427 (Aug.) 1922.

[14] Papin, E.: Deux observations de chirurgie rénale: I. Rein en fer à cheval, Bull. Soc. franç. d'urol. **8:** 142 (April 15) 1929.

[15] Israel, J.: Diagnosen und Operationen bei verschmolzenen Nieren, Folia urol. **1:** 617-641, 1908.

[16] Swan, R. H. J.: Remarks on Four Cases of Horseshoe Kidney, Proc. Roy. Soc. Med. (Sect. Urol.) **19:** 29-33 (July) 1926.

[17] Jeck, H. S.: Horseshoe Kidney, Internat. J. Med. Surg. **32:** 239 (Aug.) 1919.

The urea output from the three pelves was as follows: upper right, 15 Gm. per liter; lower right, 9 Gm. per liter; left, 5 Gm. per liter. Indigo carmine showed up in deep concentration from the ureter leading to the upper right and the left pelves but in only medium concentration from the ureter to the lower left pelvis.

Because of the continued rise in temperature and tenderness in the left loin, operation on the left kidney was decided on. Under gas-oxygen anesthesia the left loin oblique and transverse kidney incision (as described in the foregoing) was made. As soon as the kidney was exposed, it was carefully palpated, and the preoperative diagnosis of horseshoe kidney was confirmed. The lower pole could readily be felt extending across the median line, and the opposite kidney could likewise be palpated.

The kidney was found to be flabbier than normal, and its cortex was studded with miliary abscesses. One abscess, however, was fully the size of a large pea. It was decided to remove the right half of the kidney. In this case the heminephrectomy was accomplished with very little difficulty. The main blood supply came from under the ribs and entered the upper pelvis near the upper pole. Other blood vessels entered the lower pelvis, which was the larger of the two, coming from below upward. These were smaller than the upper blood vessels. All blood vessels were clamped and ligated, and the isthmus, which appeared to be mostly fibrous in character, was divided at the narrowest point of the toe of the horseshoe. A clamp was first placed across the isthmus just to the right of the proposed line of incision and the isthmus was cut. Before the clamp was removed, the cut edge was sutured by means of the whipover stitch described in case 1. This was pulled tight as the clamp was withdrawn. There was no bleeding. A cigaret drain was inserted, and the wound was closed in layers.

The patient's convalescence was somewhat stormy because of an infection of the superficial tissues about the wound, but he finally made a complete recovery.

Case 3.—Diagnosis of horseshoe kidney was made at the time of operation. G. M., a West Indian, aged 22, was admitted to the Urological Service, Feb. 4, 1931. He complained of pain in the left loin and also in the left lower quadrant. He was passing urine every three to four hours by day and about twice at night. It is interesting to note that, while the pain was chiefly in the left loin, it radiated at times across the abdomen.

On admission his temperature was 100 F. and soon rose to 103. He was apparently suffering a great deal and at times vomited. Although it was difficult to palpate his left loin successfully, so intense was the tenderness, it was thought that a fairly large mass could be felt. The urine contained a little albumin, some granular casts, and a few white and red blood cells. A diagnosis of perinephric abscess was made, but an emergency flat roentgenogram was not particularly helpful in confirming this. It was felt that, if a catheterized specimen of urine from the left kidney was free from pus, a diagnosis of perinephric abscess would be more or less confirmed. It was also felt that the patient was too sick to have more done at the time of cystoscopic examination than catheterization of the ureters and the making of an indigo carmine test.

On cystoscopic examination the bladder seemed to be normal. Indigocarmine appeared from the right ureter in deep concentration in seven minutes. No indigo carmine could be seen coming from the left ureter. Catheters were introduced up both ureters, the right one going only 8 cm. and the left one 20 cm. A specimen was obtained from the right ureter but none at all from the left. The right ureteral specimen showed 6 Gm. of urea per liter and was negative for pus.

At the time of the operation the patient's temperature had dropped almost to normal and the pain in the left loin had abated considerably. The loin was also much less tender than on admission. At this time a diagnosis of infected hydronephrosis seemed more probable than perinephric abscess.

The usual left oblique transverse loin incision was made. A very large, more or less lobulated, fluctuating shell of kidney soon presented itself. Because the kidney mass filled the entire wound there was some difficulty in freeing it from the adhesions which bound it down. Finally the kidney was freed except at the lower pole. Here it seemed to taper off into a dense sort of mass, which would not give way. On further palpation it was soon discovered that this tapering end extended across the spinal column. It was not until then that the presence of a horseshoe kidney became evident.

In order to afford more room, the kidney pelvis was tapped and at least a pint of thin pus and urine was evacuated. The kidney readily collapsed, which made the rest of the operation relatively easy. Heminephrectomy was considered as the operation of choice. The problem of whether or not the right side of the kidney had its own ureter then arose. The appearance of indigo carmine from the ureteral orifice on the right side at the time of cystoscopy was not considered as sufficient proof that the right kidney was large enough to carry on the work of two. The roentgen shadow was not plain enough to be reassuring, and very little information as to the size of the kidney could be elicited by palpating across the spinal column. The patient was too sick to permit of much further exploring. Therefore it was decided that on account of the infection it would be safer to take for granted the functional capacity of the right kidney and to do a nephrectomy than to leave the infected mass in situ.

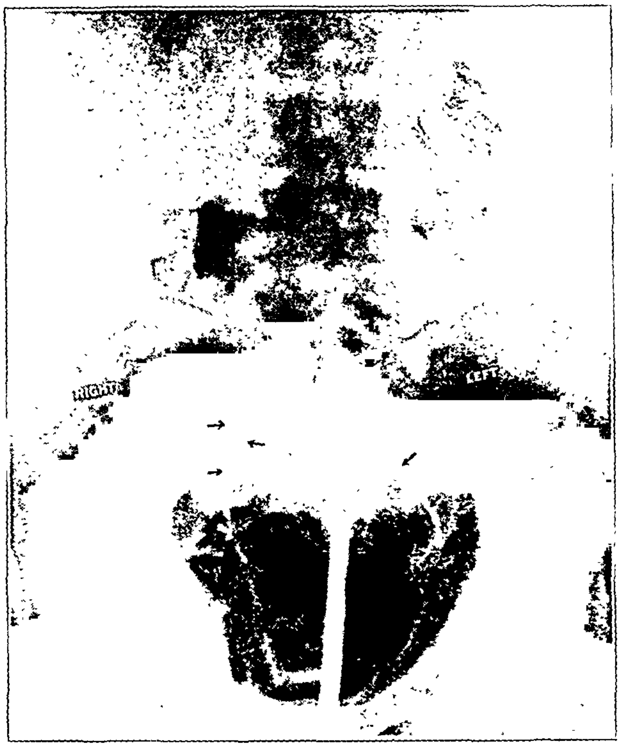

Fig. 4.—Retrograde urogram of patient shown in figure 3. The arrows indicate outlines of two ureters on the left side and a Y-shaped ureter on the right side.

The left half of the kidney and the isthmus were then thoroughly examined for accessory blood vessels and ureters. With the exception of two or three aberrant arteries entering the lower pole, no other vessels were seen. On the left side there was apparently only one ureter. This was as large as one's little finger and entered the pelvis in fairly normal fashion, although there was some narrowing at the ureteropelvic junction. The ureter was clamped, ligated and cut about 4 inches below this point. The pedicle and accessory vessels were then clamped, tied and cut. This then permitted free access to that part of the isthmus where the division was to be made. The entire left kidney was so hollowed out by the infected process that it was not difficult to determine where the point of division should be. The actual cautery was employed in cutting off the diseased portion of the kidney, the slight oozing which resulted being readily controlled by the cautery. No sutures or ligatures at all were used to control any bleeding from the stump.

Two cigaret drains were inserted in the wound, and the loin muscles were closed in layers. Convalescence was uneventful and there was never any drainage of urine from the wound.

Case 4.—R. M., a man, aged 24, an Italian, reported to the Urological Department of the Cornell Clinic in January, 1931, complaining of pain in the right upper quadrant. A diagnosis of a small stone in each half of a horseshoe kidney was made. This case was interesting in that the first urogram made disclosed the presence of two pelves and two ureters on the left side. A similar condition was suspected on the right side but was not proved until later. Because of the fact that his pain was not particularly severe and was even absent a good deal of the time, plus the fact that the stones were evidently very small and therefore likely to be difficult to remove, he was advised to defer operation until such time as it might become absolutely necessary. Toward the latter part of March the pain in the right loin became so persistent and so nagging in character that he entered the Urological Service at Bellevue for the purpose of having the stone in the right kidney removed.

At Bellevue, interest was at once directed toward the proof of two pelves and two ureters on the right side. This was finally accomplished by employing both intravenous and retrograde urography. In one of the plates made by the former method, four pelves were fairly distinctly seen, but no ureters (fig. 3). In other plates by the latter method, two ureters on the left side and one ureter on the right side were distinctly outlined, with a strong suggestion of a second ureter on the right side (fig. 4).

The stone on the right side appeared to be in one of the minor calices of the lower pelvis.

April 8, 1931, the patient was operated on,[18] the usual incision being employed. Palpation of the kidney mass soon confirmed the diagnosis of horseshoe kidney, and careful dissection proved the presence of two ureters on the right side. The isthmus appeared to be about as large as one's thumb and composed of kidney parenchyma entirely.

As was expected, there was considerable difficulty in locating the stone. Not until the lower portion of the pelvis was opened (anteriorly) and the little finger inserted could the stone finally be detected. It lay in one of the minor calices. Since attempts to remove it with forceps through the pelvic opening were unsuccessful, it became necessary to cut through the cortex immediately over the stone. The stone was then removed readily through the cortical wound.

The wound in the cortex, which was scarcely longer than 1 cm., was closed with one through and through mattress suture, bits of fat being placed in each loop before the suture was drawn taut. Two mattress sutures were then placed over the incision through the kidney capsule. The pelvic incision was partially closed by one suture placed in the lower angle. Two cigaret drains were led down to the pelvis and brought out in the middle of the wound. The muscles and skin were closed in layers.

A few days after the operation, blood appeared in the voided urine. In twenty-four hours' time it had disappeared, then in another twenty-four hours it reappeared, and cystoscopy disclosed the fact that bloody urine was coming from the right kidney. The hematuria was so persistent that eight days after the operation a transfusion was performed, 500 cc. of blood being given. As the bleeding still continued and the patient was losing ground, a second operation was performed, April 19, eleven days after the first operation, with the idea of controlling the hemorrhage, probably by nephrectomy. Under spinal anesthesia the patient's old wound was opened up. The following is Dr. Stevens' [19] description of the secondary operation: "The patient's condition was precarious. It seemed that his best chance for life was in the rapid removal of the right kidney. Hence both ureters were cut across and tied; the vessels at the two poles were similarly treated; two vessels going into the region of the upper pelvis were likewise cut and tied, and the veins running parallel to the ureters were cut between ligatures. This freed the right kidney very well, but the problem of how to handle the excision from the left kidney was a serious one as there seemed no way to control the bleeding coming from the left kidney. Venous bleeding had been encountered from the region of the upper pelvis with some loss of blood, and the patient could ill afford to lose any more. Hence several through and through sutures of number 2 chromic catgut were deliberately placed through the kidney below the lower pelvis, and this region of the kidney was tied off *en masse*, as one would tie a large pedicle, three of these sutures being used at first. The kidney was then quickly cut away more than a centimeter above these sutures. Two other sutures were similarly placed afterward to control two oozing points."

The postoperative convalescence was stormy. The patient suffered considerable shock as a result of the operation, and the wound soon showed evidence of a marked infection. However, his condition slowly improved, and at the present writing he is about ready to be discharged from the hospital, although some urine still leaks through a small fistula in his loin.

(Note.—June 25, 1931, a third operation was performed on this patient because of the persistence of a urinary fistula in the loin. The old incision was reopened and continued transversely across the midline. Both an extraperitoneal and an intraperitoneal exposure were required in order to find the stump of the isthmus. When finally located, a small segment of it was removed because of infection. July 26, the patient was discharged from the hospital. While the wound was not quite healed, no urine had leaked through it since the time of the third and last operation.)

SUMMARY

The incidence of horseshoe kidney taken from autopsy records at large varies from 1 in 300 to 1 in 1,100. The Bellevue autopsy incidence is 1 in 643.

The average age at death of individuals with horseshoe kidneys is probably in the neighborhood of from 35 to 40 years.

Since 1918, in approximately 400 kidney operations in the Bellevue Urological Service, there were four cases of horseshoe kidney. Two of these were encountered during the first five years of this period and two during the last five months. Two were recognized as horseshoe kidneys before operation and two were not. In three of the cases, heminephrectomy was performed. Of these three, the pathologic condition encountered in two was pyonephrosis and in the other suppurative nephritis. In the fourth case small bilateral calculi were present. Pyelotomy and nephrotomy were performed on the right side for the removal of a stone, and a few days later a secondary heminephrectomy became necessary because of hemorrhage. Several weeks later a portion of the stump was removed because of a persistent urinary fistula and infection of the stump.

Heminephrectomy was relatively easy in the first three cases. In all three the isthmus was small and chiefly fibrous in character. Accessory blood vessels were also present in all three but were easily recognized. In the fourth case, heminephrectomy was difficult partly because it was a secondary heminephrectomy but chiefly because of the large size and histologic character of the isthmus. This was first tied with transfixation sutures and then divided.

CONCLUSIONS

1. Horseshoe kidneys are more prone to become diseased than normal kidneys. The surgical diseases are doubtless due to poor pelvic drainage fostered by certain anatomic anomalies.

2. A preoperative recognition of horseshoe kidney before the days of urography was exceptional. Today its recognition, except in emergency cases, has almost become the rule.

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[18] Dr. A. R. Stevens, who operated on the patient, furnished the details concerning the operations and gave me permission to include the case among these reports.

[19] Stevens, A. R.: Personal communication to the author.

3. Greater care in the various types of operations on horseshoe kidneys must be exercised than in similar operations on congenitally normal kidneys. The factors rendering such precautionary measures necessary are (*a*) the extensive and anomalous blood supply, (*b*) the possible presence of the two ureters on the same side, (*c*) the size and character of the isthmus, (*d*) the relative immobility of the kidney, and (*e*) the possibility of the presence of the rarer anomalies, such as fusion of the suprarenals.

4. The knowledge that the supposedly sound half of the kidney has its own ureter intact is essential before performing a heminephrectomy. This operation is rendered much easier by an incision (preferably extraperitoneal) which permits of ample exposure of the kidney pelvis, the isthmus and all possible accessory vessels.

121 East Sixtieth Street.

REGURGITATION RENAL COLIC

A CLINICAL ENTITY *

BRANSFORD LEWIS, M.D.
ST. LOUIS

In former years the medical profession rested serene in its reliance on the integrity and constancy of the normal ureteral valve for resisting and preventing the regurgitation of fluid from bladder to ureter. Once it had entered the bladder there was no going backward, even under all the pressures or provocations that could be brought to bear to that end. Experiments on animals served to confirm this belief.

In 1898, Young[1] was unable to effect regurgitation by various degrees of pressure on the filled bladders of animals, and he affirmed the correctness of the established belief. The researches of Sampson and of Stoeckel pointed in the same direction.

But clinical observations of Kretschmer, Kelly and others, and the numerous experiments of Graves and Davidoff, Bumpus, Zernblinoff, Guyon and Albarran, Icobelli, Lewin and Goldschmidt, Marcus, von Lichtenberg, Lampe, Warschauer, Alksne and Barbey changed the views of the profession. Graves and Davidoff[2] showed that even under very low pressure (from 8 to 10 mm. of mercury) the slow filling of the bladder in healthy dogs, cats and rabbits was followed by a surprisingly large percentage of regurgitation into the ureters of the opaque fluid used, proved with roentgenograms. In rabbits it was as high as 80 per cent. The authors found that it was the stronger bladders having the greatest tonicity that were most likely to do the backward leaking, while those possessing less tonicity were most likely to show a competent and resisting valve.

These striking results in animals naturally were followed by the question of their bearing on human beings and their ureteral orifices. Bumpus[3] endeavored to get an answer to this question and made 1,036 cystograms in patients, finding 89 (8.6 per cent) in which there was regurgitation into one or both ureters, some connected with back pressure, others in which the open and incompetent valve was made so by participation of the ureteral wall in inflammatory processes that involved primarily the bladder. So that it now seems well established that, under appropriate conditions of tonicity and pressure on the filled or semifilled bladder, urine or fluid does regurgitate through the healthy and intact ureteral orifice back into the ureter and up even to the renal pelvis. Colored fluids (aniline dyes) were made thus to ascend the ureteral channels. Antiperistalsis played no part in the phenomenon.

By experiments and minute investigations, Gruber[4] endeavored to learn the exact mechanism, whether sphincteric or valvular, by which regurgitation was ordinarily prevented. His definite conclusion was that the intravesical ureter served as a passive true valve and not as a sphincter. Cutting or injury to the valve permits regurgitation, and stretching the bladder mucosa by injecting into the bladder excessively large amounts of fluid under high pressure shortens the valves and in many instances renders them incompetent. Regurgitation in health is thus again confirmed.

The main deduction made from these observations by practically all writers was that it offered obvious explanation as to the frequency of ascending infection from bladder to kidney: It was simply carried thence by infected urine regurgitating under conditions favorable for it.

But a careful and exhaustive review of current textbooks on urology, as well as of the writings of the authors quoted, has failed to reveal any reference to urinary regurgitation as a cause for renal colic.

With the phenomenon of renal colic, physicians are well acquainted, the suddenness and severity of the attack precipitating an apparently healthy individual into torture that rolls him on the floor in agony and requires large doses of morphine to bring about relief.

If the colic is due to stone, naturally suspected, it is, of course, the physician's duty to recognize the cause and remove it as promptly as may be. But in many instances, even with the suffering as great as described, there is no stone present and an entirely different course of treatment is to be pursued, dependent on the cause of the colic in that particular case.

It is generally recognized that renal colic or pain that closely simulates it is caused by a number of different conditions other than the presence of stone in the ureter or kidney pelvis. Henry Morris,[5] for instance, mentions as causes hysteria, renal congestion from nervous excitement, perinephric abscess, menstrual disturbances, torsion of renal vessels or ureter, strain, cicatricial bands pressing on ureter or kidney, aneurysm of the descending aorta, biliary and appendicular disorders, vesical calculi or new growths, ureteritis, seminal vesiculitis, movable kidney, Dietl's crisis, renal tuberculosis, and urine overcharged with uric acid or with oxalate of calcium crystals. In addition to these, periodic attacks occur, he says, in cases without being followed by the discharge of a calculus. They come on without any ascertainable cause, especially when the patient falls into low health or is worn out by prolonged or fatiguing occupation. As to the severity of suffering, he says: "Women have aborted, men have committed suicide and children have been thrown into convulsions during the fearful agony of renal colic."

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* *From the St. Louis University School of Medicine.*

* Read before the Section on Urology at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 12, 1931.

* The term "urinary reflux" refers to the easy passage of urine back and forth between the bladder and the ureter through a wide-open "golf-hole" orifice. "Urinary regurgitation" relates to the passage of urine from the bladder to the ureter through a normal, intact ureteral orifice under the influence of overfilling or of an undue amount of pressure on the filled or semifilled bladder.

1. Young: Bull. Johns Hopkins Hosp. **9:** 105, 1898.

2. Graves, R. C., and Davidoff, L. M.: J. Urol. **10:** 185 (Sept.) 1923; **14:** 1 (July) 1925.

3. Bumpus, H. C., Jr.: J. Urol. **12:** 341 (Oct.) 1924.

4. Gruber, C. M.: The Ureterovesical Valve, J. Urol. **22:** 275 (Sept.) 1929.

5. Morris, Henry: Surgical Diseases of the Kidney and Ureter, Chicago, W. T. Keener & Co., 1904, vol. 2.

Kelly and Burnam[6] discuss nephralgia as connected with hematuria caused by three conditions: (*a*) nephritis, (*b*) varices of the kidney pelvis, and (*c*) rupture of small blood vessels. They assert that, in a number of instances (over 100), operations, including nephrectomy, had been carried out without disclosing any cause for either hematuria or colic, and in some operative cases pain only was present without hematuria.[7]

This declaration indicates two points deserving attention: (1) the lengths to which renal colic drives the practitioner as well as the patient on occasion, and (2) the necessity of knowing and having at one's command all the possible causes for this condition in order that one may promptly fulfil the requirements of correct diagnosis and successful treatment.

Keyes[8] has lucidly analyzed the several conditions and sequences attendant on urinary retention, partial and complete, temporary and chronic, but has not mentioned severe renal colic as an accompaniment of them. He refers also to the occasional occurrence of reflux of fluid up the ureter during cystography in animals, and reasons that the same phenomena may occur in man. The most interesting deduction he makes from it, he says, is its bearing on infections of the upper tract, urethral chill, and so on. Under the caption "Pseudorenal Colic," Keyes says:

> I have reported cases in which the passage of crystals or blood clots from the kidney, intestinal colic and vesiculitis precisely resembled renal colic in their subjective symptoms. Many physicians cherish the delusion that such pseudorenal colics are not as intense as the colics due to stone and do not require morphine. But in intensity there seems little choice between them.

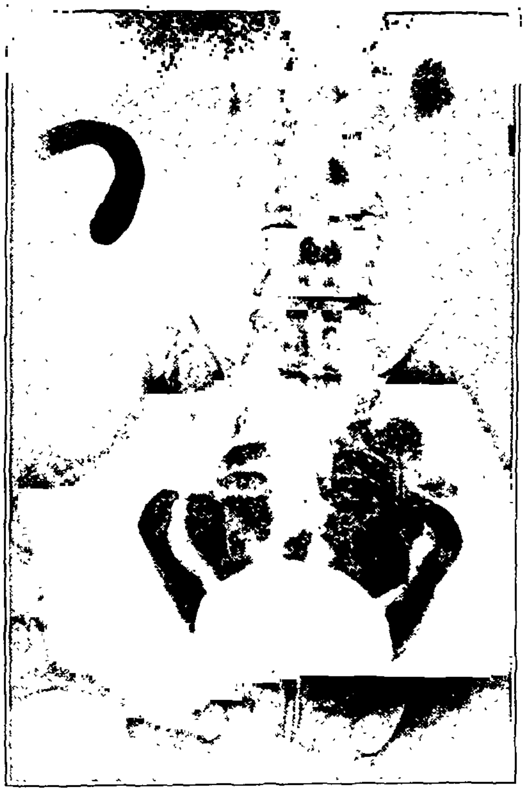

Fig. 1 (courtesy of Dr. P. E. McCown of Indianapolis).—Cystogram showing bilateral regurgitation in case presenting prostatic obstruction and chronic right renal pain. Relief was afforded by prostatectomy.

Francis Kidd[9] contributes an enlightening chapter on renal pain and hematuria of unknown origin, mentioning numerous causes, but urinary regurgitation is not "among those present."

Casper[10] gives a formidable list of causes other than stone for renal colic but does not mention urinary regurgitation in that light. The same might be said of other authors consulted, Eugene Fuller, Thomson Walker, Guitéras, Victor Pedersen, Henry Morton, Ballenger, David Newman, Chetwood, Cabot, Young, Green and Brooks, and others. Hence the inference either that regurgitation renal colic has not received any recognition on the part of the profession or that it is deemed so insignificant that it does not deserve such recognition. The latter is hardly conceivable, in view of the expressions quoted and the sufferings entailed.

The acute and agonizing suffering from typical renal colic, recurrent for months or years or protracted for days, should certainly be of sufficient importance to deserve or demand the attention of the profession, however incidental it may be to other and greater pathologic conditions.

That the phenomenon of renal colic caused by urinary regurgitation has previously been called to the attention of the profession appears from the fact that I[11] have discussed the subject in that light in papers in 1924, 1925, 1926, and occasionally in impromptu discussions of medical societies since 1915.

In the paper of 1926 was related the fact that as early as 1913 I had been impressed with the association between urinary obstruction at the vesical neck and renal colic. Several striking and typical cases had, in the years following, come under my observation, some of which were briefly related. My earlier interpretation of the relationship was that of nervous reflex from obstructed bladder to kidney; that is, vesicorenal reflex; and it was not until the experiments of Graves and Davidoff[2] and of Bumpus,[3] confirmed by others, divulged the frailty instead of the reliability of the ureteral valve that I understood the reason for the relationship. Regurgitation through the intact ureteral orifice occurred under back pressure in a strong bladder blocked by prostatic obstruction, whether from contracture or from overgrowth!

The newly established facts harmonized wonderfully with clinical observations made in previous years. They explained to my satisfaction why intense renal colics, recurrent or enduring, occurred in direct connection with prostatic obstruction in men and urethral obstruction in women (whether organic or spasmodic), and why relief was immediate and complete on draining the bladder, and was made permanent by following up with measures that removed the obstruction. At any rate, some clinical evidence is here submitted, the early cases previously quoted being included. These cases are given in brief outline, many details of examination, history, and so on being omitted for the sake of brevity.

REPORT OF CASES

Case 1.—Nov. 18, 1913, a physician patient, Dr. F. J. D., aged 59, arrived from Dallas, Texas, referred by Drs. Kinsell and Martin of that city. He had been suffering for about fifteen years from recurrent attacks of pain in the back on the left side, the pain running thence down the course of the ureter. In addition there was pain in the bladder and perineum, with extreme sensitiveness on urinating and in intercourse, lasting at times for hours. The suspicion of ureteral stone awakened by these persistent symptoms appeared to be confirmed by roentgenograms taken in Dallas (without being checked up with the ureteral catheters, however) which showed a shadow apparently in the line of the left ureter, low down.

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[6] Kelly, H. A., and Burnam, C. F.: Diseases of the Kidneys, Ureters and Bladder, New York, D. Appleton & Co. **2:** 1, 1914.

[7] Young has mentioned six cases, Cabot thirteen, and Renard-Dethy three in which operations had been done for stone that was not found to be present

[8] Keyes: Urology, 1928.

[9] Kidd, F. S.: Urinary Surgery, London, Longmans, Green & Co., 1910.

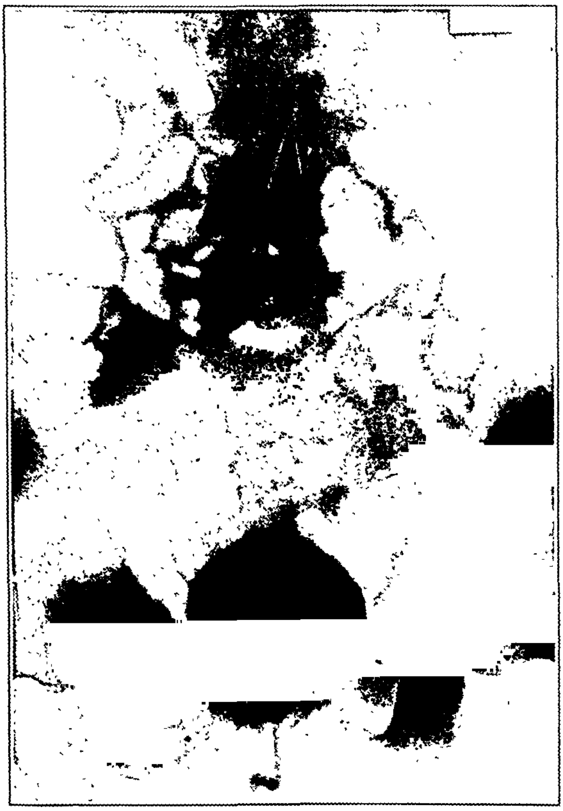
[10] Casper, Leopold: A Textbook of Genito-Urinary Diseases Including Functional Sexual Disorders in Man, translated and edited with additions by C. W. Bonney, Philadelphia, P. Blakiston Son & Co., 1909.

[11] Lewis, Bransford: Urologic Diagnosis for the General Practitioner, J. Indiana M. A. **17:** 374 (Nov.) 1924; J. Missouri M. A. **22:** 88 (March) 1925; Urinary Regurgitation and Renal Colic, J. Urol. **15:** 189 (Feb.) 1926.

The urine was loaded with blood, pus and bacteria. But roentgenograms, taken with catheters placed in the ureters, showed the supposed stone shadow to be outside the ureter, and that there was therefore no stone; while the evidence of obstruction and irritation at the vesical neck was clear, including as it did a small amount of residual urine (2 ounces) and supersensitiveness of the urethra and the bladder.

Although of fifteen years' standing, the symptoms were promptly cleared up, and relief was attained by treatment directed to the obstruction and inflammation located at the neck of the bladder: Kollmann dilatings were given, together with antiseptic posturethral irrigations.

This case was so striking that it made an impression that lasted. Several other cases seen later renewed the impression of prostatic obstruction causing "stone colic" without the stone.



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Roentgenography with ureteral catheterization demonstrated the absence of stone at any point as clearly as those agencies were capable of doing, and treatment for relief of the obstruction (indwelling catheter, dilatings, and so on) was given at once and permanently relieved the pain. Efficient urination was reestablished and retention done away with by Kollmann dilatings and irrigations, which were given with decreasing frequency during the ensuing few months. There has been no recurrence of the pain. I have never seen a more typical attack of renal colic than this patient had presented.

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Kelly and Burnam[6] discuss nephralgia as connected with hematuria caused by three conditions: (*a*) nephritis, (*b*) varices of the kidney pelvis, and (*c*) rupture of small blood vessels. They assert that, in a number of instances (over 100), operations, including nephrectomy, had been carried out without disclosing any cause for either hematuria or colic, and in some operative cases pain only was present without hematuria.[7]

This declaration indicates two points deserving attention: (1) the lengths to which renal colic drives the practitioner as well as the patient on occasion, and (2) the necessity of knowing and having at one's command all the possible causes for this condition in order that one may promptly fulfil the requirements of correct diagnosis and successful treatment.

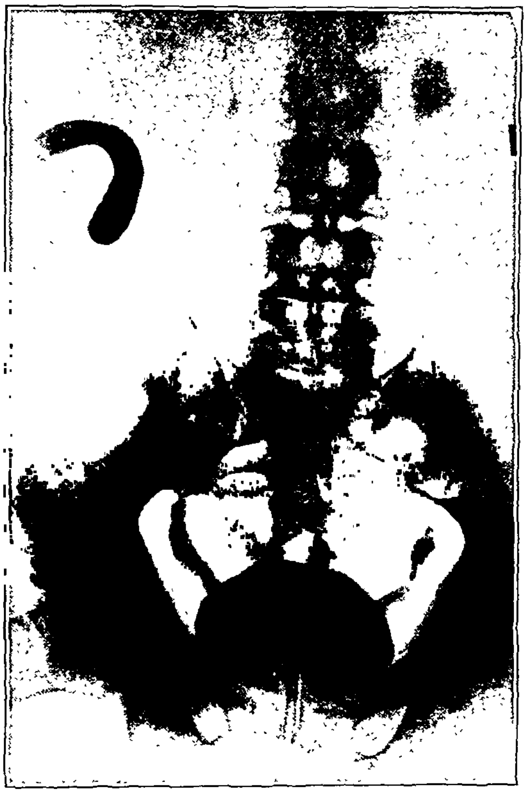

Fig. 1 (courtesy of Dr. P. E. McCown of Indianapolis).—Cystogram showing bilateral regurgitation in case presenting prostatic obstruction and chronic right renal pain. Relief was afforded by prostatectomy.

Keyes[8] has lucidly analyzed the several conditions and sequences attendant on urinary retention, partial and complete, temporary and chronic, but has not mentioned severe renal colic as an accompaniment of them. He refers also to the occasional occurrence of reflux of fluid up the ureter during cystography in animals, and reasons that the same phenomena may occur in man. The most interesting deduction he makes from it, he says, is its bearing on infections of the upper tract, urethral chill, and so on. Under the caption "Pseudorenal Colic," Keyes says:

> I have reported cases in which the passage of crystals or blood clots from the kidney, intestinal colic and vesiculitis precisely resembled renal colic in their subjective symptoms. Many physicians cherish the delusion that such pseudorenal colics are not as intense as the colics due to stone and do not require morphine. But in intensity there seems little choice between them.

Francis Kidd[9] contributes an enlightening chapter on renal pain and hematuria of unknown origin, mentioning numerous causes, but urinary regurgitation is not "among those present."

Casper[10] gives a formidable list of causes other than stone for renal colic but does not mention urinary regurgitation in that light. The same might be said of other authors consulted, Eugene Fuller, Thomson Walker, Guitéras, Victor Pedersen, Henry Morton, Ballenger, David Newman, Chetwood, Cabot, Young, Green and Brooks, and others. Hence the inference either that regurgitation renal colic has not received any recognition on the part of the profession or that it is deemed so insignificant that it does not deserve such recognition. The latter is hardly conceivable, in view of the expressions quoted and the sufferings entailed.

The acute and agonizing suffering from typical renal colic, recurrent for months or years or protracted for days, should certainly be of sufficient importance to deserve or demand the attention of the profession, however incidental it may be to other and greater pathologic conditions.

That the phenomenon of renal colic caused by urinary regurgitation has previously been called to the attention of the profession appears from the fact that I[11] have discussed the subject in that light in papers in 1924, 1925, 1926, and occasionally in impromptu discussions of medical societies since 1915.

In the paper of 1926 was related the fact that as early as 1913 I had been impressed with the association between urinary obstruction at the vesical neck and renal colic. Several striking and typical cases had, in the years following, come under my observation, some of which were briefly related. My earlier interpretation of the relationship was that of nervous reflex from obstructed bladder to kidney; that is, vesicorenal reflex; and it was not until the experiments of Graves and Davidoff[2] and of Bumpus,[3] confirmed by others, divulged the frailty instead of the reliability of the ureteral valve that I understood the reason for the relationship. Regurgitation through the intact ureteral orifice occurred under back pressure in a strong bladder blocked by prostatic obstruction, whether from contracture or from overgrowth!

The newly established facts harmonized wonderfully with clinical observations made in previous years. They explained to my satisfaction why intense renal colics, recurrent or enduring, occurred in direct connection with prostatic obstruction in men and urethral obstruction in women (whether organic or spasmodic), and why relief was immediate and complete on draining the bladder, and was made permanent by following up with measures that removed the obstruction. At any rate, some clinical evidence is here submitted, the early cases previously quoted being included. These cases are given in brief outline, many details of examination, history, and so on being omitted for the sake of brevity.

REPORT OF CASES

Case 1.—Nov. 18, 1913, a physician patient, Dr. F. J. D., aged 59, arrived from Dallas, Texas, referred by Drs. Kinsell and Martin of that city. He had been suffering for about fifteen years from recurrent attacks of pain in the back on the left side, the pain running thence down the course of the ureter. In addition there was pain in the bladder and perineum, with extreme sensitiveness on urinating and in intercourse, lasting at times for hours. The suspicion of ureteral stone awakened by these persistent symptoms appeared to be confirmed by roentgenograms taken in Dallas (without being checked up with the ureteral catheters, however) which showed a shadow apparently in the line of the left ureter, low down.

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[6] Kelly, H. A., and Burnam, C. F.: Diseases of the Kidneys, Ureters and Bladder, New York, D. Appleton & Co. **2**: 1, 1914.

[7] Young has mentioned six cases, Cabot thirteen, and Renard-Dethy three in which operations had been done for stone that was not found to be present

[8] Keyes: Urology, 1928.

[9] Kidd, F. S.: Urinary Surgery, London, Longmans, Green & Co., 1910.

[10] Casper, Leopold: A Textbook of Genito-Urinary Diseases Including Functional Sexual Disorders in Man, translated and edited with additions by C. W. Bonney, Philadelphia, P. Blakiston Son & Co., 1909.

[11] Lewis, Bransford: Urologic Diagnosis for the General Practitioner, J. Indiana M. A. **17**: 374 (Nov.) 1924; J. Missouri M. A. **22**: 88 (March) 1925; Urinary Regurgitation and Renal Colic, J. Urol. **15**: 189 (Feb.) 1926.

The urine was loaded with blood, pus and bacteria. But roentgenograms, taken with catheters placed in the ureters, showed the supposed stone shadow to be outside the ureter, and that there was therefore no stone; while the evidence of obstruction and irritation at the vesical neck was clear, including as it did a small amount of residual urine (2 ounces) and supersensitiveness of the urethra and the bladder.

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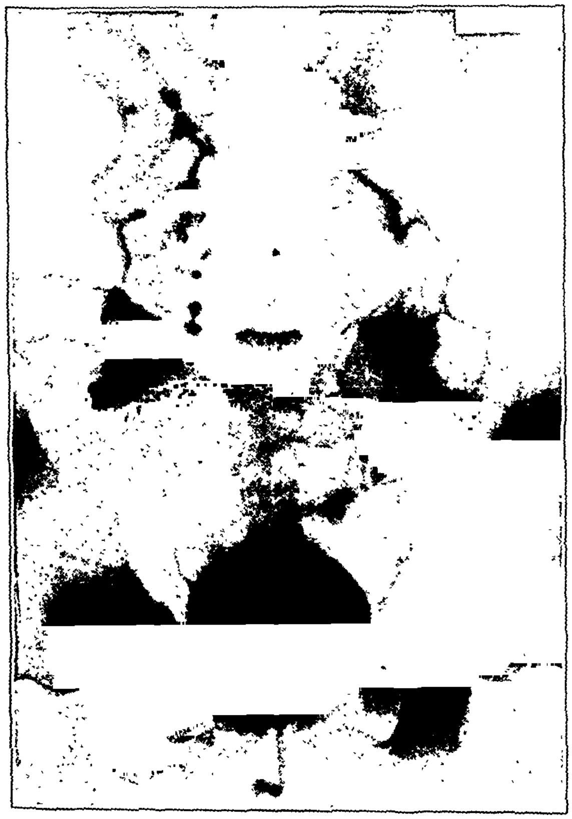

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Urethral dilatings (Kollmann) and irrigations gave prompt recovery and no recurrence.

Case 5.—Mrs. E. T., aged 41, was referred July 27, 1929, by Dr. Rutledge, Festus, Mo. So severe was the pain in the suprapubic and left lumbar regions, accompanied by straining efforts at urination but complete retention excepting the occasional passage of a drachm or so of urine under the severest straining, that she entered the hospital on a stretcher. The attack had been in progress since the previous five days. One similar attack had been experienced three years earlier, with almost complete retention for forty-eight hours.

Catheterization was extremely difficult because of a strictured urethra, together with a benign growth in the urethra. Fulguration of this growth, followed by Kollmann dilatings, restored normal urination and as promptly relieved the excruciating lumbar pain. From this time until October, 1930, the patient neglected the follow-up treatment and then had a recurrence of difficult urination, straining and lumbar pain similar to the previous two attacks though not so severe. Catheterization and dilatings of the existing urethral stricture proved as effective for relief as previously, and the patient declared herself willing to pursue treatment as advised for prevention of recurrence.

Case 6.—A. F. S., a man, aged 55, entered the hospital, Jan. 28, 1926, complaining of excruciating pain in the left lumbar region that necessitated the giving of scopolamine and other sedatives. Searching examination failed to reveal the kidney stone that was suspected but did disclose the presence of a contraction at the vesical neck that had been the cause of backward pressure and the regurgitation pain from which he had suffered. At least this was our deduction when the patient was almost instantly relieved by the dilatings given, and, with these repeated from time to time, he has never had an attack since that time, five years ago.

Case 7.—J. F. H., a man, aged 37, of Newark, N. J., while traveling west on a train, Sept. 6, 1929, was suddenly attacked with severe pain in the left lumbar region that caused him to "double up in agony," as he expressed it. The attack was accompanied by frequency and difficulty in urination and straining that added to his suffering. He was compelled to leave the train and receive treatment (morphine hypodermics) for two days before he could continue on his way west. On his arrival in St. Louis he consulted me and was sent to the hospital for removal of the suspected stone. He said that two weeks previously he had had a similar attack but not quite so severe. Cystoscopy, catheterization and urography failed to reveal a stone but, on the other hand, gave prompt relief from the pain. With this as a clue, I gave dilatings to a tight posterior urethra, discontinued the use of sedatives and obtained prompt recovery that has lasted to the present time, backed up with occasional dilatings as advised.

Case 8.—A. S., a man, aged 39, of Springfield, Ill., entered the hospital in March, 1928, complaining of acute pain that seemed to begin in the bladder and run upward to both kidneys but was most severe on the right side.

The routine cystoscopic examination failed to reveal evidence of stone but gave relief from the pain, so it was followed by posturethral Kollmann dilatings, and the patient has not had any recurrence since, nearly three years.

Case 9.—R. L. R., a man, aged 34, has been under my care for a year or more, with chronic prostatitis and contracture at the vesical neck, with urinary infection that frequently extends to the upper tract. By various measures the residuum has been reduced from 4 ounces to nothing for most of the time. But attacks of difficult urination occur occasionally, nevertheless.

Nov. 30, 1930, while experiencing a cold day in Chicago, he was suddenly seized with violent pain in the bladder that seemed reflected into both kidneys. He described his suffering as agonizing for the next twenty-four hours, compelling his return home. On arriving in St. Louis he was relieved by catheterization and a good stretching with the Kollmann dilator. While examination for a possible stone or other cause was not overlooked and was, in fact, carried out with negative results, our acquaintance with his condition made it easy to arrive at the diagnosis promptly and to give treatment that brought the desired relief.

In searching for literature analogous to the subject of this paper, I found a contribution by Rénard-Dethy,[12] who refers to renal colic caused by nodules in the prostate or seminal vesicles, and describes three cases of that origin. The patients had finally been relieved by treatments applied to the prostate. His explanation of the relationship was that of reflex nervous influence. He evidently had not encountered the previous contributions of mine, of 1924, 1925 and 1926, for he says: "I have not found publication of a single case of renal colic attributed to a prostatic lesion."

Kartal[13] mentions six cases of renal colic due to seminal vesiculitis (spermatocystitis), observed in the clinic at Zurich.

A contribution that is more nearly analogous to the subject of this paper is that of Dr. C. Lepoutre[14] of Lille, which was made to the Société française d'urologie, Jan. 20, 1930. In his paper, Lepoutre speaks of severe lumbar pain in connection with urination that occurred intermittently for months, in a 65 year old prostatic patient who was finally referred to Dr. Lepoutre for a diagnostic clearing of the mysterious condition prevailing. For eight months the patient had suffered almost daily or nightly attacks of violent pain in the left lumbar region. They occurred either at the time of urination or on feeling the necessity to urinate, especially in case the act was deferred. Roentgenography was negative for calculus. Cystoscopy disclosed an enlarged prostate and a golf-hole ureteral orifice on the left side. The bladder was filled with 200 cc. of collargol suspension, and the first roentgenogram showed nothing in the left ureter or kidney pelvis, but shortly thereafter the patient complained of a strong desire to urinate and immediately of pain in the left kidney. The second roentgenogram, then made, showed the left pelvis and calices well filled; the left ureter was less distended but showed the presence of collargol. Prostatectomy was done, providing easy emptying of the bladder and relief from the colics.

In the discussion that followed this report, sympathetic interest was shown and discussions were given by Marion, Papin, Gayet and Pasteau. The speakers made use of the terms "active reflux" and "passive reflux" to distinguish between regurgitation under pressure through an intact ureteral orifice, and the passive reflux through a golf-hole orifice.

At any rate, there was definite recognition by the speakers present of the condition referred to at this meeting of 1930 and described by me in the previous years noted.

While I appreciate the desirability of direct evidence such as roentgenograms showing regurgitation and overfilled ureters at the time of paroxysms in these cases, it is obvious that such evidence has been unattainable prior to the advent of intravenous urography, because the introduction into the ureter of a catheter would, per se, destroy the evidence that was sought; namely, pent-up urine under backward pressure. But now that intravenous urography is available, it is hoped that that object may be accomplished even though it may entail prolongation of the colic while the investigation is being made. At any rate, it is hoped that the evidence of regurgitation renal colic as a clinical entity herewith submitted may be sufficient to merit the attention of the profession and receive either confirmation or denial from its observations.

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[12] Rénard-Dethy, H.: Arch. franco-belges de chir. **31**: 943 (Nov.) 1928.

[13] Kartal, S.: München. med. Wchnschr. **75**: 601 (April 6) 1928.

[14] Lepoutre, C.: J. d'urol. **29**: 196 (Feb.) 1930.

ADDENDUM

After hearing this paper read in Philadelphia, Dr. P. E. McCown of Indianapolis kindly submitted the two accompanying roentgenograms of cases illustrating, he believed, the regurgitation that had been the cause of chronic renal pain, in which both were permanently relieved by removal of the obstruction at the vesical neck—one by prostatectomy, the other by dilatings of a urethral stricture which he definitely recognized. Roentgen evidence of ureteral regurgitation is plainly discernible in both negatives, incidental to cystograms made under moderate pressure.

1020 Paul Brown Building.

CONSERVATION IN THE TREATMENT OF MOVABLE KIDNEY *

WILLIAM F. BRAASCH, M.D.
ROCHESTER, MINN.

It would hardly seem necessary to reopen for discussion a subject which has been settled and buried several times in the last thirty years; and yet, when it is resurrected with somewhat altered features and set going again with new supporters and followers, it must be dealt with and either allowed to go on its way or reinterred. The gentle art of nephropexy has had such a course in recent years, and it is now enjoying a decided renaissance. Many of the arguments in its favor are not new, and consist of the simple story of palpable nephroptosis, abdominal pain, nephropexy and cure, at least so reported, in from three to six months. The experience of twenty odd years ago, when the operation was widely employed, is surely not forgotten. It will be remembered that many surgeons were most enthusiastic about the merits of nephropexy, and cures were claimed for a great variety of complaints, varying from backache to insanity. When symptoms either similar or referred to other areas, even to the other kidney, reappeared in many cases within a year or more afterward, the operation soon lost its appeal; it was largely discontinued and actually fell into disrepute. In recent years the procedure has been revived by a group of surgeons no less important than the urologists, and its application is now spreading rapidly. The following questions naturally arise: Why has this ancient practice been revived? Has a new or overlooked reason been found, any new method of diagnosis, any recent discovery in pathology or physiology to substantiate it, and, lastly, has a new method of operation been discovered which not alone fixes the kidney permanently but eradicates the symptoms as well?

The present attitude toward the surgical treatment of nephroptosis varies widely. Two extreme views are advanced: that surgical treatment is never indicated, and that most cases of nephroptosis should be treated surgically. The first view is supported by many general surgeons who still remember the unsuccessful results of twenty years ago. The group supporting the latter view includes many urologists who operate promiscuously without regard for other clinical conditions. There is a third group whose members believe that nephropexy is indicated in selected cases only; they differ widely, however, as to the methods of selection and as to the proportion of patients who should be operated on. The more liberal members of the third group would include many cases in which symptoms are referred to the kidney, whether or not any evidence of pyelectasis or of urinary retention is found on urographic examination. They manage to find a considerable number of the patients with nephroptosis who are amenable to nephropexy. The conservative element in this group, however, will insist on definite urographic evidence of obstruction and renal stasis as well as pain referred to the renal area, before advising surgical treatment.

I have long maintained that any surgical or other form of mechanical treatment directed toward the kidney or ureter, without visual evidence of inadequate urinary drainage, is unjustifiable. Any claim that there could be urinary obstruction sufficient to warrant such treatment without evidence of pyelectasis or of ureterectasis has no pathologic or physiologic foundation. I agree with Kidd[1] that there is no indication for the surgical treatment of renal dystopia without such data. Evidence of abnormality in the outline of the renal pelvis, calices or ureter should be demanded before operation is advised. Granted that selection of cases for nephropexy should depend on the results of urographic examination, the problem becomes largely one of urographic interpretation. Such examination will usually show a variable degree of malposition. It is usually advisable to make urograms with the patient in the dorsal and in the erect position, in order to determine the full extent of renal excursion. The degree of renal ptosis has been arbitrarily graded, 1, 2 and 3, the last grade being given when the renal pelvis is at the level of the iliac crest, or lower. The axis of the pelvis and calices is frequently abnormal as the result of renal displacement (figs. 1, 2 and 3).

Renal ptosis, however, even if graded 3, is not an indication for surgical treatment, unless there is evidence also of urinary stasis. Some observers maintain that urinary obstruction might be transient and so slight that it might not cause actual dilatation of the calices, pelves or ureter. Judging from the duration and frequently the constancy of symptoms in most cases, it would be difficult to believe that complete absence of any deformity in the pelvis or ureter would be possible. It is always present with chronic ureteral obstruction from other causes, and why should it not be present with ptosis?

Although gross abnormality in the pelvic outline will be readily recognized in the urogram without a great amount of experience, yet in many cases the interpretation will not be so simple. By gross changes I refer to frank evidence of pyelectasis, as shown by dilated calices and pelvis, usually referred to as hydronephrosis. In most cases in which evidence of abnormality is found in the pelvic outline with nephroptosis, the changes will be slight and characterized by moderate pyelectasis and also, curiously enough, in some cases by evidence of dilatation of the ureter. Whether the moderate degree of pyelectasis noted is always due to actual obstruction is sometimes open to question. Occasionally the urogram will show an outline of the renal pelvis and calices which is not quite normal and still could hardly be described by the term pyelectasis. The outline of the pelvis and calices gives the appearance of being atonic, and the condition has been described as "flabby pelvis." This condition is often

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* From the Section on Urology, the Mayo Clinic.

* Read before the Section on Urology at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 12, 1931.

[1] Kidd, Frank: Acquired Renal Dystopia or Movable Kidney, J. Urol. **26**: 327-378 (Sept.) 1931.

in keeping with the condition of the abdominal wall and accompanying visceroptosis. A slight degree of pyelectasis is often found in the course of examination of patients with renal ptosis who have not had lumbar or abdominal pain, so that it is questionable whether this observation should necessarily be regarded as indicative of actual obstruction.

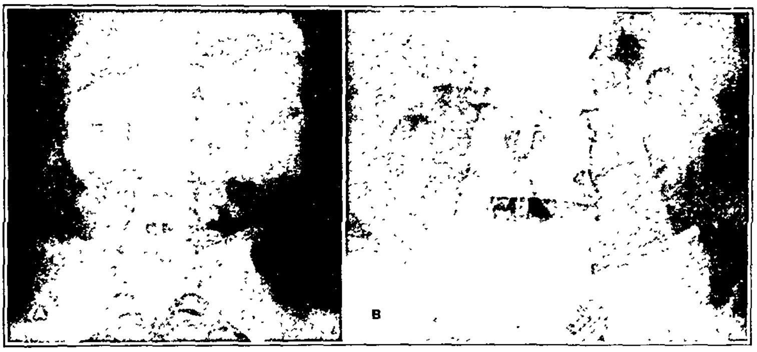

Fig. 1.—*A*, clear visualization of both renal pelves, which are normal, with patient in dorsal position. *B*, with patient in erect position there is evidence of moderate bilateral renal ptosis. There is no evidence of pyelectasis and no visual indication for nephropexy.

Intravenous urography is of distinct value in the recognition of minor degrees of pelvic abnormality resulting from renal ptosis. By comparing the outlines of the two pelves, any difference in size or deformity in the pelves and calices can be readily recognized. Evidence of comparative delay in drainage can also be visualized in the late films. Although urographic examination is invaluable in the selection of cases for operation, I have found that in doubtful cases pyeloscopy, or rather uroscopy, is of great value in the recognition of physiologic abnormalities in the pelvis and ureter. I have been using a 30 per cent solution of iopax (uroselectan) or skiodan, injected through the ureteral catheter, because sodium iodide, formerly employed, often caused irritation and spasm. Roentgenoscopy after intravenous injection has not as yet afforded visualization clear enough for exact interpretation. Uroscopic examination often will give data which can be acquired in no other way, particularly in demonstrating (1) the difference in renal drainage when the patient is in the erect or in the dorsal position; (2) the region of obstruction, if any, and (3) the degree of pelvic and ureteral peristalsis. If there is no evidence of obstruction to drainage, and the peristalsis is normal throughout, there could hardly be any reason for surgical intervention.

The patient's symptoms constitute another significant factor in influencing opinion as to the advisability of nephropexy. If renal ptosis is the cause of renal obstruction it would necessarily be accompanied by intermittent attacks of acute renal pain referred to the affected renal region. It has been common experience, however, that most patients with renal ptosis have variable and often vaguely localized pain. In only a comparatively small percentage of cases of renal ptosis is the pain referred definitely to the region of the kidney. In many the pain is referred to the inguinal, suprapubic or sacral region; or it is diffused over the entire abdomen; or it is shifting, being referred first to one side of the abdomen and then to the other, or it is abdominal at one time and otherwise later. In fact, the subjective symptoms, as one might expect, since psychoneurotic tendencies frequently are observed in cases of nephroptosis, are usually unconvincing. To complicate the situation, cases of nephroptosis are occasionally observed in which lumbar or abdominal pain has never been present and in which urographic examination will disclose mild pyelectasis. Another disquieting feature was noted in several cases in which nephropexy had been done elsewhere with relief of symptoms following operation but in which the kidney was found to be as low and as freely movable as it was before the patient was "cured." Equally confusing is the fact that the degree of renal excursion of the two kidneys may be equal and both pelvic outlines normal, and yet the pain is referred entirely to one side. This problem has been solved by ardent advocates of nephropexy by simultaneous operation on the two kidneys.

If careful clinical examination is ever of therapeutic importance it certainly is in the case of ptosed kidney. When one attempts to determine the cause of abdominal pain, every other organ should be carefully excluded before evidence of renal malposition is looked for. Since renal ptosis is usually evident on casual abdominal palpation, it is frequently regarded as the source of the symptoms, and a thorough clinical examination is not made. A wide variety of lesions was discovered in the course of routine examination of 200 patients who either had been operated on elsewhere for renal ptosis or had been advised to undergo operation. In a review of their clinical records, together with those of 100 patients who were found to have renal ptosis, several interesting observations were made. Most of the symptoms were of a functional nature, which often served to confuse symptomatic evidence of coexisting organic lesions in other organs. In almost all the cases the symptoms could be explained on the basis of evidence of an inferior nervous system, and there was definite clinical evidence of hysteria, psychoneurosis, or constitutional inferiority. In seeking relief from symptoms these patients will grasp at any suggestion of organic lesion and readily submit to surgical treatment. At least one abdominal operation had been performed on almost all the patients, and, on many, three or four

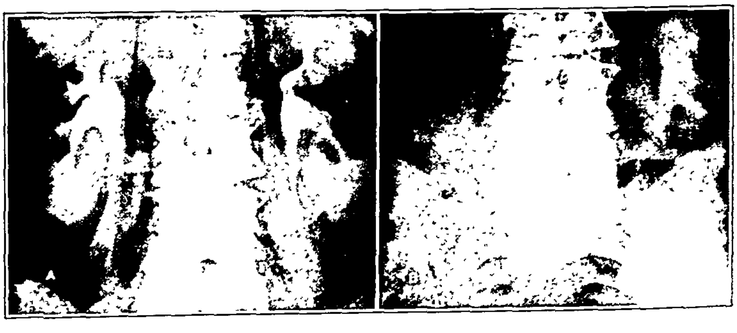

Fig. 2.—*A*, clear visualization of both renal pelves with patient in dorsal position. Bilateral ptosis is graded 1. *B*, with patient in erect position, film made forty-five minutes later shows trace of skiodan remaining in right renal pelvis, which is dimly seen at level of crest of ilium. Left renal pelvis is partially filled and is opposite the fourth lumbar vertebra. Bilateral renal ptosis is graded 3. The absence of complete drainage in forty-five minutes and the absence of pyelectasis would contraindicate surgical procedures.

operations had been performed. Instead of surgical treatment a therapeutic program should have been prescribed, consisting of dietary and occupational suggestions, together with proper exercise, and play or rest, as might be indicated. Correction of posture, massage, and other conservative measures should also be thoroughly tried. Letters from these patients or clinical examinations made a year or more later disclosed that the symptoms of many had been relieved by instructions given them aiming at improvement in their general health. Several were markedly improved as a result of correcting posture. When pain in the back was predominant, removal of foci or use of sacro-iliac belts often gave considerable relief. Only a few of these patients were found later to have intermittent attacks of abdominal pain that could be regarded as amenable to surgical treatment.

Some of the more conservative surgeons who frequently advise nephropexy claim that, if these palliative measures fail to be beneficial, operation is advised even though there is no urographic evidence of renal obstruction. That improvement may be noted in some of these cases within a few months after nephropexy cannot be denied. From a review of the postoperative course of the patients operated on in the clinic for nephroptosis, as well as of patients operated on elsewhere, it was noted that many had been relieved for several months to a year following operation. This might well be explained by several factors: Many patients were undoubtedly improved by the enforced rest, which usually covered a period of several months before they resumed their occupations. In other cases the functional nature of complications and the unbalanced condition of the nervous system were such that the operative procedure itself undoubtedly left a profound therapeutic impression. It is evident that much reliance cannot be placed on the subjective results following operation until several years have elapsed.

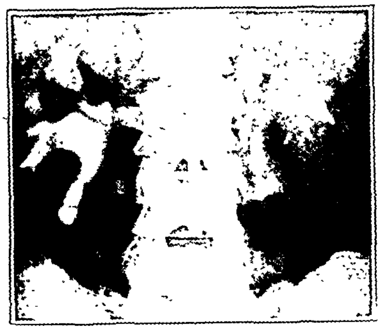

Fig 3.—Bilateral renal ptosis, graded 2 with patient in dorsal position. Evidence of pyelectasis in right kidney. Typical "flabby" pelvis. Uroscopic examination did not show evidence of obstruction to peristalsis in either pelvis or ureter

Spurred on by glowing reports of cures following nephropexy, made by advocates of the operation during recent years, I have made every effort to find patients with renal ptosis for whom nephropexy could be urged with a clear conscience. I have even gone so far in some cases as to waive the necessity of undisputed urographic evidence of stasis. In spite of determined effort, but few patients have been found on whom the operation was justifiable. Either the patient had a hopelessly psychoneurotic disposition and the symptoms were of a doubtful nature, or there was clinical evidence of some other abdominal lesion, or the pyelographic evidence was negative. In fact, it may be stated that unless there is visual evidence of renal obstruction in the effort to correct definite abdominal symptoms, it would usually be advisable to explore the abdomen before attempting nephropexy.

Having demonstrated the existence of renal stasis, the next question which arises is whether renal ptosis is the cause of the patient's symptoms. It is doubtful whether renal ptosis alone could cause urinary obstruction. In other words, there must be some other factor actually causing ureteral obstruction which developed as a result of ptosis, such as fixation of the upper part of the ureter by bands of tissue, adhesions, the results of periureteritis, or anomalous blood vessels. It may be difficult to determine, on surgical exploration, to what extent renal ptosis is an etiologic factor. Evidence of obstruction in the upper part of the ureter may be apparent, but it may be difficult to determine whether coexistent ptosis is etiologic or coincident. Nephropexy was often employed as a precautionary measure in addition to other procedures in a series of plastic operations for hydronephrosis, although in many cases it seemed doubtful whether ptosis was much of a factor in causing pyelectasis.

It is difficult to form any definite opinion as to the value of the different types of operative technic advanced by various surgeons. One could easily be in doubt as to the best method of renal fixation, because of the many methods that have already been advanced. In fact, almost every surgeon who had performed a number of these operations has his own pet technic; usually the technic embodies the suggestions made by Albarran,[2] Edebohls,[3] and others. It is common knowledge that in most cases in which the kidney has been operated on, secondary exploration will show that the kidney is firmly fixed by scar tissue, and secondary mobilization is quite difficult. On the other hand, I have observed patients who claimed that renal fixation had been made elsewhere, and the kidney was just as mobile as it was supposed to have been before operation. It is evident, therefore, that when nephropexy has been done it is important to make urographic studies after operation in order to determine the results accomplished.

The following conclusions would seem logical:

1. Renal ptosis without urinary obstruction has no clinical significance and is seldom, if ever, the cause of symptoms.
2. Renal obstruction as the result of ptosis can always be demonstrated by urographic or uroscopic examination, and operation is justifiable only in the presence of such evidence.
3. In the majority of cases in which nephropexy has been done without previous demonstration of evidence of urinary stasis, the symptoms will return within one or two years following operation.
4. Postoperative urographic examination is necessary to determine the permanence of normal renal position as well as improvement in drainage.
5. The percentage of patients having nephroptosis who can be relieved of their symptoms by renal fixation will be comparatively small.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. JECK, LEWIS AND BRAASCH

Dr. W. Hersey Thomas, Philadelphia: Dr. Jeck's paper shows a greater incidence of horseshoe kidney than any other series with which I am familiar except that reported by Naumann in 1897, who found 1 case in 600 autopsies. It should be noted that the preoperative diagnosis was made in 50 per cent of the operations at Bellevue. In the 108 cases collected from the literature and carefully studied by Rathbun in 1924, only 22 per cent had been diagnosed prior to operation. Our

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2. Albarran, Joaquin: Médecine opératoire des voies urinaires, Paris, Masson & Cie, 1909.
3. Edebohls, G. M.: The Surgical Treatment of Bright's Disease, New York, F. F. Lisiecki, 1904

greatest aid in diagnosis unquestionably is urography. Dr. W. Edward Chamberlain recently called my attention to the fact that, when the calices point in an opposite direction from the normal, a horseshoe kidney is always present. It has also been pointed out that in horseshoe kidney there is an interruption of the outlines of the psoas muscles. Just what is to be done in any given case will always challenge the best judgment of the operator, but his decision will be largely determined by the amount of his preoperative study of the case. The paper by Dr. Lewis reaffirms his former writings and furnishes fresh evidence of the soundness of his views. "Stone colic without stone" as a diagnosis has frequently resulted in numerous painstaking and destructive searches for something that was not present. Dr. Lewis has offered in the way of diagnosis something that is distinctly better. Only too frequently in the past have patients been discharged with a diagnosis of urolithiasis, in the belief that in some mysterious way the calculus has passed and escaped detection. May I suggest that the shortening of the intravesical ureter in Gruber's experiments is analogous to that seen in an oblique inguinal hernia in which there is a constant tendency toward the development of a direct from an oblique canal by the approximation of the internal and external rings. Intravenous urography, with its great possibilities for demonstrating the physiology of the urinary system as a whole, should do much to establish further the existence of regurgitation renal colic, and I am sure that in future cases of this type the possibility of its occurrence will not be ignored. Dr. Braasch's end-results in several hundred patients operated on from two to twenty years ago impresses on all of us the importance of selecting the proper cases of nephroptosis for fixation. For many years my own indications for operation have been limited to two—urinary obstruction and the occurrence of a complicating infection. It is readily seen why the indiscriminate fixation during the earlier days of renal surgery brought operations for nephroptosis into deserved disrepute.

Dr. Henry Sangree, Philadelphia: I wish to refer to some of the work of the late Dr. Thomas, who had collected a number of these cases. One case was in a girl, aged 8, who had considerable pain, and in the erect position the kidney could be seen descending to the second vertebra. The child was underweight, and a pediatrician took care of her in an effort to build her up and get some fat to hold the kidney in better position. Some credit must be given to him. A roentgenogram taken after three months showed some improvement, but there was still a hydronephrotic cap. In the erect position the kidney was held in the normal position by means of a belt, and the child was relieved of symptoms. My associates and I use a belt to fit these children, and it is put on in the Trendelenburg position, holding both kidneys up in good position. We have obtained excellent results in the conservative treatment of these patients by holding the kidney up and getting rid of the hydronephrosis due to the kinking of the ureter.

Dr. Robert Gutierrez, New York: Two types of cases of horseshoe kidney must be considered clinically. There are those cases in which pathologic changes have been established or in which concomitant lesions are present, as in the cases which Dr. Jeck described. The second group is formed by persons with horseshoe kidney in which no associated pathologic changes or visualized lesions are present, although the patients are suffering from unrecognized symptoms which constitute the horseshoe kidney syndrome. This syndrome has been present almost uniformly in the series of cases I had the opportunity to study, with an incidence of about 96 per cent. The horseshoe kidney syndrome is characterized by pain in the epigastrium or in the umbilical region, radiating to the lumbar region and accompanied by the chronic constipation and urinary disturbances for which patients come for examination. I have come to the conclusion that, owing to the prominent position the horseshoe kidney occupies in the middle of the abdomen (lying on the aorta, vena cava, the solar plexus and the sympathetic and parasympathetic nerves), the weight, the pressure and the incarceration of the organ are the paramount etiologic factors in the associated pathologic changes and the horseshoe kidney syndrome; and that these conditions are due also to the anterior position of the pelves and ureters, for they lie in front of the renal mass, which obviously interferes with their normal dynamic and physiologic function, producing lack of drainage and urinary stasis. In view of these factors I am firmly convinced that not until the isthmus of the horseshoe kidney is divided by a symphysiotomy procedure can permanent cure be obtained. The urographic data in the diagnosis are essential and are well known since Braasch pointed them out. However, in this connection, in studying the films of this series of cases that we have diagnosed, I have found a new sign which I think is of pathognomonic value in establishing an accurate diagnosis, particularly in these days when intravenous pyelography is coming into extensive use. I have called this new sign the horseshoe kidney triangle. It is formed by drawing a triangle in the bilateral pyelogram, uniting the two lower innermost calices and drawing a line from each of these to the point where the bisiliac line crosses the midline, which point becomes the apex of the triangle. In horseshoe kidney this basal triangle is about 20 degrees, while in normally placed kidneys the average is about 90 degrees. After measuring a series of more than 100 bilateral pyelograms in which the kidneys are normally placed in the lumbar fossae, I have found this lower basal angle to be almost always more than 90 degrees in normally placed kidneys, while in horseshoe kidneys, owing to the approximation of the innermost calices of the two sides, this angle is extremely narrow, with an average of about 20 degrees. I think, therefore, that this is a very graphic and valuable sign to assist in establishing a correct diagnosis of the condition.

Dr. N. G. Alcock, Iowa City: I have found an interesting curiosity in a horseshoe kidney. The patient was a large man who had had hematuria on two or three different occasions. He fell on his elbow, on the right side, and a big tumor developed in the kidney. I found that he had two orifices on the right and one on the left, and in introducing the catheter we found an opening up under the tenth rib which showed that a double kidney was present. The psoas muscle did not show. In the subsequent pictures we could see the two pelves. It has been said that in horseshoe kidney the calices point in and not out, but in the six cases we have seen they have pointed outward. In this case cystoscopy was done, a large catheter was put in, and sodium iodide was introduced. The pyelogram revealed an enormous hydronephrosis of the one kidney. When the kidney was exposed it looked like an enormous polycystic kidney, but I broke one of the apparent cysts and the kidney emptied. The isthmus was cut across after being clamped and the patient was all right except that drainage continued for fifteen or sixteen days before any urine passed.

Dr. William E. Stevens, San Francisco: Morris reported 19 cases of horseshoe kidney which he had found in a series of 18,244 recorded autopsies. Most of my patients have complained of a sensation of pressure or pain in the abdomen, which has been increased by exercise and relieved by rest in bed. I have occasionally been able to palpate an oval mass in the abdomen. One of my patients complained of symptoms suggestive of pelvic inflammatory disease. At operation a horseshoe kidney was found, in addition to a large cystic ovary and an appendix which showed evidence of previous inflammation. A third pelvis and ureter arose from the isthmus of this kidney. No similar case has been recorded in the literature. Another of my cases was of interest because of the fact that a diagnosis of horseshoe kidney was justifiable without pyelography, because of the approximation of the lower poles of the two segments. The plates of a third case are interesting because of the fact that both segments of the horseshoe kidney are seen to be located to one side of the vertebral column, and one of the segments is ectopic. Many patients with horseshoe kidney never have symptoms. This condition will be discovered more frequently with the increasing use of intravenous pyelography.

Dr. Hermon C. Bumpus, Jr., Rochester, Minn.: Some years ago, in trying to ascertain the mechanism of renal back pressure in patients with prostatic obstruction, I discovered that regurgitation occurred in 4 per cent of the cases. In none of these cases, however, was there a history of any clinical entity such as Dr. Lewis describes. I believe that the colic is a result not of regurgitation but of peristalsis in a normal ureter trying to overcome some obstruction in the intramural portion of the ureter. Dr. Lewis spoke of intravenous urography making possible for the first time visual demonstration of these cases.

It would demonstrate ureteral retention as the result of obstruction but I should think it would interfere with the demonstration of mediums going from the bladder up the ureter.

Dr. Edward L. Merritt, Fall River, Mass.: Dr. Braasch has spoken of the need of finding renal stasis before one can definitely blame the kidney for the symptoms. I think this is true, just as it is now believed that renal back pressure must be demonstrated before one can blame ureteral stricture for symptoms. The point I wish to bring out is that I believe these pyelograms should be made with the patient erect, in order that one may find the kidney in its normal position. If ptosis is present, this method will demonstrate it much better than with the patient lying down. I think that the use of a belt should be considered, and believe that it will give relief in cases in which operation is contraindicated. Last year I had two cases in which there was definite nephroptosis in the remaining kidney, one kidney having been previously removed. In these cases a kidney belt was applied, always being put on by the patient while lying in the Trendelenburg position. This gave absolute relief to these patients. I should like to have Dr. Braasch tell how he feels about the use of belts.

Dr. George R. Livermore, Memphis, Tenn.: In a case of movable or ptosed horseshoe kidney with hydronephrosis, marked pain and dysuria, at operation the kidney was movable an inch or more; a nephropexy was done, with entire relief from symptoms. I think we are indebted to Dr. Braasch for so lucidly explaining this subject and giving us his views as to when to operate. We all know that nephropexy is not 100 per cent effective, as shown by cases in which operation was performed at the Mayo Clinic and elsewhere. I have recently had a case in which the kidney slipped after being operated on by the Kelly method, and the patient has a return of symptoms. It is remarkable what relief a large percentage of patients obtain from a well fitting corset.

Dr. William P. Herbst, Minneapolis: Any problem that is so controversial as the indication for nephropexy in painful ptosed kidneys, with equally able men taking opposite sides, must have some explanation. As a partial explanation I wish to submit that those who champion the cause for nephropexy because of their good results unwittingly do a renal sympathectomy of variable degree and that those who are against nephropexy because of unsatisfactory results do not disturb the renal plexus in their nephropexy technic. The operation of nephropexy, as done at the Mayo Clinic, consists of mobilization of the kidney to an extent which allows the kidney to be fixed in what is considered the normal position without even visualizing the renal pedicle and consequently without disturbing the renal plexus. The operation of nephropexy, as done by Dr. Foley of St. Paul, who is one of the most enthusiastic advocates of nephropexy, consists of a very beautiful exposure of the kidney, renal pedicle and upper ureter which cannot help but result in considerable disturbance of the renal nerve supply. In addition to the foregoing observations, I wish to call attention to the work of Dr. Elmer Hess of Erie, who has done a number of sympathectomies in cases of painful renal ptosis without employing any method of fixation except postoperative abdominal pressure and position. His results with this type of procedure have been as satisfactory as any nephropexy. I have two pyelograms—before and after a nephropexy. The first one does not demonstrate any abnormality except a slight ptosis. The second one, done after a nephropexy, demonstrates a kidney rotated on its horizontal axis with an acute angulation of the ureteropelvic junction, so that anatomically it is worse than before operation, yet the patient has had complete relief for over a year and a half. I believe that the operation in this case was successful because the operator destroyed enough of the renal plexus in his mobilization. In view of the fact that in abnormally mobile kidneys as many are symptomless as are pain producing, I wish to suggest that the pain in cases of abnormally mobile kidneys is frequently due to abnormal motility syndromes of a spastic nature due to disturbed sympathetic nerve control involving the individual calices, ureteropelvic junction or ureter, as described by the Harrises of Australia, recognizable only by pyeloscopy and controllable by various drugs or renal sympathectomy.

Dr. William F. Braasch, Rochester, Minn.: There is no doubt that nephropexy is indicated in selected cases with renal ptosis, but I do not think that we are agreed as to just what should be regarded as an indication for surgical treatment. I am certain that evidence of renal obstruction is a definite indication and usually the only one. I did not have time to go into conservative treatment, but it seems evident that in many cases the treatment is similar to that employed with psychoneuroses. Many patients with renal ptosis have definite evidence of psychoneurosis and it is usually not secondary to renal dystopia. Another important feature in the conservative treatment of these cases is the correction of posture. Many of the patients will be found to have some deforming sacro-iliac disease, and in these cases the wearing of a proper belt has been of great importance in relieving the symptoms. In a series of fifty cases in which a diagnosis of renal ptosis was made and conservative treatment was advised rather than operation, we reviewed the results two years later. Many of the patients were markedly improved following rest, massage, diet, increase in weight, and so on. Conservative treatment should always be given these patients before one advises nephropexy. It is probably true that, owing to prejudice against operation for renal ptosis there are occasional patients who are suffering needlessly and who might be relieved by nephropexy, as Dr. Lewis maintains. However, there is a far greater number who are now being operated on for renal dystopia in whom operation is not indicated and who would be much better off with conservative treatment.

Dr. Bransford Lewis, St. Louis: Most members of the profession say, "Do not speak of anchoring a kidney; we are not doing that any more." I think this cannot be decided on any such generalities. Statistics will not tell whether or not to operate on a given patient. One must determine that by the conditions found in each case. Dr. Braasch is conservative, but his is not the blind, harmful conservatism of the general profession. Urologists have to educate the profession to a reasonable, logical conception of this subject, which has its place just as much as any other endeavor in medicine or in surgery. With regard to the other type of conservatism, recently Kidd read a paper on this subject and said that before he operated on such a patient he had her wear a belt for six months. Lowsley has said that women should wear a belt for a year before operation. Would these gentlemen defer other needed operations for so long a time? A few weeks of wearing an abdominal belt as a therapeutic test is sufficient.

Dr. A. I. Folsom, Dallas, Texas: The question raised by Dr. Lewis is interesting. I have never seen a case that attracted my attention as coming in the category he described. I have seen cases due to inflammatory processes in the vesical neck. My explanation was that the inflammation had produced a reflex spasm at the vesical neck, which produced a reflex spasm of the ureteral outlet and caused the colic, instead of the regurgitation causing it. Whether it is regurgitation or spasm will have to be thoroughly studied. In regard to fixing floating kidneys, there is too wide a divergence of views after so many years. I think that many more floating kidneys cause symptoms than Dr. Braasch brought out, and there are many that produce distressing symptoms, and the man who does not attempt to pick out these cases is failing in his duty. I have no better results and no more grateful patients than in nephropexy. I think Dr. Braasch is wrong in stating that there must be definite evidence to show that the kidney pelvis is dilated. Before I submit a patient to nephropexy, that patient must have a definitely located pain in the loin, and it must be definitely aggravated in the erect position. I admit that there is an occasional rare case in which this is reversed. I had one such case and I watched that patient for a long time before I operated, but I got a brilliant result. I think that in 99 per cent of the cases the pain must be aggravated on standing and must also be relieved by the patient lying down. In addition to that, I require another standard, which is that the distention of the kidney pelvis must reproduce the pain the patient complains of, and she must identify it without any help from me. I believe that if one limits one's operation to those cases in which there is definite pain located definitely in the loin, which is unquestionably aggravated by standing and relieved by lying down and which is definitely reproduced by filling the kidney pelvis, one will be the most enthusiastic supporter of nephropexy in these cases, in which it undoubtedly is indicated.

Dr. Howard S. Jeck, New York: Dr. Gutierrez mentioned a symptom complex which he ascribes to horseshoe kidney. Essentially he has reference to Rovsing's sign; namely, suprapubic pain which is relieved when the patient lies down. Of interest in this connection is a case in which the patient was operated on by my associate, Dr. Keyes. For years this patient had abdominal discomfort. At times she also had sudden attacks of pain in the right side and experienced increasing inability to exercise because of the abdominal pain thus produced. A diagnosis of horseshoe kidney was made by a pyelogram. Division of the isthmus, together with raising the right half of the kidney about 4 cm. and anchoring it, afforded complete relief. Dr. Alcock said that almost all the cases he has seen of horseshoe kidney show the calices in the pyelograms pointing outward. This is true in a number of instances, but in most of them the calices point inward. When this occurs, I believe it should always arouse one's suspicion of the presence of horseshoe kidney and when the calices point outward other factors will have to be taken into consideration in order to make a diagnosis. In the cases Dr. Stevens has just described and demonstrated, I think that most of the calices pointed inward.

Dr. Bransford Lewis, St. Louis: In answer to the suggestion of Dr. Bumpus that this is peristaltic pressure against the ureteral orifices, that is theoretical and he has not proved it any more than I have proved my belief. He has proved the possibility and relative frequency of regurgitation. If these patients are crying with pain for twenty-four or forty-eight hours and have been having recurring attacks for ten or fifteen years, and if one puts in a catheter and relieves the retention, the patient at once feels better, without anything having been done to the ureteral orifice. Relief of obstruction at the vesical neck alleviates the pain, and for as long as the obstruction is relieved.

RETROBULBAR NEURITIS DUE TO THALLIUM POISONING FROM DEPILATORY CREAM

REPORT OF THREE CASES *

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Within the last two years, thallium has been incorporated in a widely advertised depilatory from which many serious consequences have been noted. Its damaging effect on the optic nerves will be the primary concern of this communication.

While looking for tellurium in a flue-dust of roasted seliniferous pyrites in March, 1861, Sir William Crookes[1] observed a green line in the spectroscope which led him, after further study, to announce the newly discovered element thallium, descriptively named from the Greek θαλλός, or Latin *thallus*, a budding twig, a word which is frequently employed to express the beautiful green tint of young vegetation.[2] This new element was presumed to belong to the sulphur group until the following year.[3]

Its metallic nature was demonstrated by Lamy of Lille in 1862, when he isolated[4] it and described its properties. During his studies he experienced weakness and pains in the legs which made him suspicious of a toxic influence from the metal. This he demonstrated experimentally by giving animals thallium sulphate and producing intestinal and respiratory embarrassment with peripheral paralyses and general weakness.[5]

Many others noted its various properties, so that it was soon used therapeutically with effect in treating colitis and the night sweats of tuberculosis. From these uses its present favor accidentally originated, for in February, 1898, Combemale[6] reported loss of hair in tuberculous patients whose night sweats he was controlling with thallium acetate. Huchard,[7] Jeanselme[8] and Guinard[9] made similar observations, and Hallopeau[10] at this time suggested its use locally for hypertrichosis, beginning his experimental work on guinea-pigs. The animals died within forty-eight hours after the local application of 50 per cent thallium ointment without effect on the hair, and he suggested a less potent dosage.

Sabouraud[11] is often credited with the use of thallium acetate purposely to produce alopecia. In 1912 he reported his experiences as follows: There was referred to him in 1897, because of baldness, a woman who had had diarrhea for which thallium acetate had been prescribed, with resulting relief of the intestinal disturbance. Within two weeks her hair fell out and it began to grow again after six weeks. This he felt might be a wise way to treat ringworm of the scalp, producing a temporary alopecia by local and internal thallium administration; but, although it was effective in the way desired, there were toxic results, namely, albuminuria, subcutaneous ecchymoses, sialorrhea and tachycardia. Because of this, Sabouraud came ultimately to prefer roentgenologically produced alopecia to that chemically produced. However, he had for five or six years before his report (1912) used mild (1 per cent) local applications in managing hypertrichosis. He cautioned against the dangers from too powerful and too large doses but observed no signs of intoxication even after eighteen months of daily use as advised.

The pharmacology of thallium has been studied by Dixon[12] and his observations are these: Although it is very closely related to lead as an element, immediate colic is not produced by injection, but rather a latent effect of the same type. The first response is a relaxation of the smooth muscle of the bronchioles, intestine and uterus. It acts on the autonomic nervous system as does strychnine on the central nervous system, allowing impulses to pass more readily than normally. So he believes that the alopecia is produced through the autonomic nervous system and supports his views by the observations of others who state that the hair of the head is under the trophic control of the internal secretory system through the sympathetic nervous system. He maintains that there is no local effect on the skin or blood vessels and that only after absorption is the hair affected. Experimental work demonstrated not only a depilatory effect but also a stimulatory influence on hair, for, after a group of animals had been shaved, those receiving thallium were covered sooner and with a heavier coat than litter controls.

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* From the Surgical Clinic of the Peter Bent Brigham Hospital.

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[4] Dumas: Rapport sur un mémoire de M. Lamy relatif au thallium, Compt. rend. Acad. d. sc. **55**: 866-872, 1862.

[5] Lamy: Sur les effets toxiques du thallium, Compt. rend. Acad. d. sc. **57**: 442-445, 1863.

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[9] Guinard, A.: L'acetate de thallium et ses dangers, J. de méd. de Paris **10**: 572, 1898.

[10] Hallopeau, cited by Jeanselme (footnote 8).

[11] Sabouraud, Raymond: De l'acetate de thallium et de son emploie dans le traitement de l'hypertrichose chez la femme, Clinique **7**: 102-104, 1912.

[12] Dixon, W. E.: Thallium, Proc. Roy. Soc. Med. (Sec. Dermat.) **20**: 77-80 (June) 1927.

Roentgen depilation was in fávor in treating ringworm at the beginning of the war, and countries such as Mexico and Russia, which were unable to import the apparatus for irradiation, were forced to the development of another safe method. Thus Cicero[13] with Peter,[14] in Mexico City, followed Sabouraud's earlier work and developed the use of thallium acetate so that it was effective without toxic influence. So also did Buschke in Berlin, whose extensive earlier experimental work on alopecia[15] as well as his more recent pharmocologic studies[16] helped in the development of thallium therapy against the tinea.

In the commercial field, thallium has been used in Zeliopaste as a rat poison and in Koremlu Cream as a depilatory. Again toxic effects have cropped out, even as they did when it was prescribed therapeutically, and the literature has included untoward experiences even from the days of the isolation of thallium to the present-day difficulties in vision seen after the use of a proprietary depilatory.

Lamy in 1862 reported his experience while working with the metal, namely, weakness and pain in the legs, although Crookes is said to have at this time taken several grains without noting any ill effects. Richet[17] in 1899 observed muscular atroph [illegible] ge to the central nervous system by [illegible][18] in 1902 had a patient, a physician, who took thallium sulphate and experienced paresthesia of the fingers and toes with pains in the legs, abdomen and perineum, tenderness over the nerve trunks, and partial paralysis of the lower extremities. There was later a total loss of hair and recovery from neuritic symptoms. In 1909 Cicero[19] spoke of the dangers from its use in depilation for tinea, and in 1912 Sabouraud[11] mentioned his experiences of excessive salivation, tachycardia, albuminuria and ecchymosis.

More recently, symptoms of various kinds have been reported from therapeutic, accidental or malicious administration. Most isolated reports have been of adults, in whom the margin of safety is much smaller than in children (Sluyters[20]). But several mass misfortunes have occurred in which dosage was miscalculated in the clinical treatment of tinea of the scalp in children (Lynch and Scovell,[21] and Merkel[22]). The syndrome has often been very puzzling, even acute abdominal symptoms being simulated, as Ramond[23] reported. Rubenstein[24] has observed encephalitic-like phenomena. There have been many reports of polyneuritis (Short,[25] Waring[26]), and some with psychic manifestations and kidney involvements (Deutsch,[27] Heinichen[28]). Retrobulbar neuritis was noted by Kaps[29] in a patient who became demented before death, and suicidal attempts have occurred.[30]

Toxic optic neuritides are due to many causes and the possible attribution to a cosmetic so little concerned us in the first of our three patients that suspicion was not aroused until the second one had been seen a month later; whereupon inquiry disclosed the probable cause of the first patient's trouble.

These patients were referred to the neurosurgical service of the Peter Bent Brigham Hospital by ophthalmologists because of failing vision and suspected chiasmal mischief.

Case 1.—*Peripheral neuritis. Falling hair. Failing vision. Nervousness. Central scotomas. Retrobulbar neuritis. Ventriculography with normal results. Discharged unchanged. History of use of Koremlu Cream subsequently elicited. Improvement of vision after discontinuance of cream.*

Miss L. L., an Italian domestic of 29, was referred by Dr. W. N. Hughes of Providence because of suspected suprasellar tumor. She complained of failing vision for fourteen months, noted especially in the central part of her visual field. Lenses were fitted without improvement and for seven months she had been unable to read. Her trouble progressed so that she could not cross the street without assistance. One year before entry she had had pains in the ankles and legs which interfered markedly with her walking but which latterly had worn away and the diagnoses made were "fallen arches" and "arthritis." In retrospect, her past history contained the clue to her predicament. She had had for five years a bothersome facial hirsuties which she had been more recently removing with a proprietary cream the name of which was not known and the importance of which at this time was overlooked.

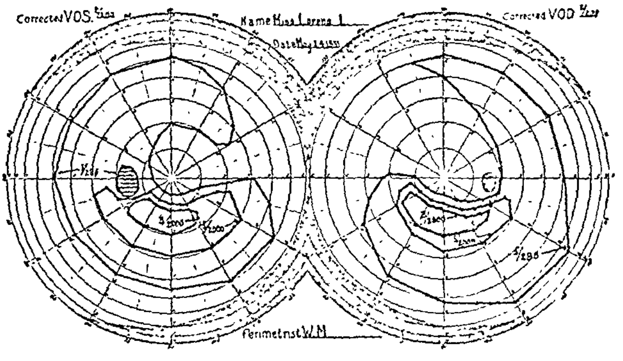

Fig. 1.—Visual fields in case 1.

On examination, hypertrichosis was marked. Her visual acuity was 3/200 and visual fields demonstrated large central scotomas with bilateral upper nasal quadrantic defects (fig. 1). It was not easy to determine whether the atrophy was primary or secondary, but it was thought that she had a retrobulbar neuritis. Intra-ocular tension was 17 mm. The sella was normal by roentgen examination and all laboratory studies were within normal limits. No focus of infection could be found. An ophthalmologic consultant so favored a secondary optic atrophy that on his suggestion further efforts were made to rule out the possibility of long-standing intracranial pressure, whereupon a ventriculogram disclosed normal ventricles and she was discharged, the cause of her trouble really unknown, with the advice to prepare to learn braille.

After the second patient was seen, further inquiry revealed that the proprietary depilatory used was Koremlu Cream, which she had applied daily to her face, arms and legs for a year and a half. She was advised to discontinue this and six months

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13. Cicero, R.: El tratamiento de las tiñas por el acetato de talio, Proc. 2d Cong. Sudamer. de dermat. y sifilog. **1:** 517-528, 1921.
14. Peter, Gustav: Die Epilation mit Thallium Acetic. Oxydulat., Arch. f. Dermat. u. Syph. **150:** 438-450, 1926.
15. Buschke, A.: Ueber experimentelle Erzeugung von Alopecie durch Thallium, Verhandl. d. deutsch. dermat. Gesellsch., 7th Kong., 1901, pp. 128-141.
16. Buschke, A.: Thallium, Deutsche med. Wchnschr. **55:** 1546-1547 (Sept. 13) 1929.
17. Richet, C.: De la toxicité du thallium, Compt. rend. Soc. de biol. **1:** 252-253, 1899.
18. Bullard, W. N.: A Case of Poisoning by Thallium, Boston M. & S. J. **147:** 589-591, 1902.
19. Cicero, R.: Tecnica del tratamiento de las tiñas par los Rayos X, Gac. méd. de México **4:** 499-514, 1909.
20. Sluyters, A.: Thalliumazetat Vergiftung, medizinale, Samml. v. Vergiftungsfällen **1:** 87-88, 1930.
21. Lynch, G. R., and Scovell, J. M. S.: The Toxicology of Thallium, Lancet **2:** 1340-1344 (Dec. 20) 1930.
22. Merkel, H.: Thalliumazetat-Vergiftungen, medizinale, Samml. v. Vergiftungsfällen **1:** 85-86, 1930.
23. Ramond, Louis: Problème diagnostique difficile, Presse méd. **37:** 691-692 (May 25) 1929.
24. Rubenstein, M. W.: Poisoning from Thallium Acetate: Report of Case, Arch. Dermat. & Syph. **23:** 477-479 (March) 1931.
25. Short, C. L.: A Case of Polyneuritis from Thallium Acetate, J. A. M. A. **97:** 101-102 (July 11) 1931.
26. Waring, T. P.: Another Case of Thallium Poisoning Following the Use of Koremlu Cream, J. A. M. A. **97:** 703 (Sept. 5) 1931.
27. Deutsch, J.: Thallium-Vergiftung durch Zelio-Rattengiftkörner (Selbstmordversuch), Samml. v. Vergiftungsfällen **1:** 149, 1930.
28. Heinichen, W.: Thallium-Vergiftung (Selbstmordversuch mit Zeliopaste), Samml. v. Vergiftungsfällen **2:** 27-28, 1931.
29. Kaps, L.: Kriminelle tödliche subakute Thallium-Vergiftung, Wien. klin. Wchnschr. **40:** 967-970 (July 28) 1927.
30. Greving, R., and Gagel, O.: Polyneuritis nach akuter Thalliumvergiftung, Klin. Wchnschr. **7:** 1323-1325 (July 8) 1928.

following she has reported improvement, so definite, in fact, that she is now able to write the letters describing her progress and is preparing to return to work.

Case 2.—*Failing vision. Peripheral neuritis. Central scotomas. Retrobulbar neuritis. Loss of hair. History of use of Koremlu Cream. Improvement after discontinuance of the depilatory.*

Mrs. B. De G., aged 28, a graduate nurse, was referred here by Dr. L. P. Jackman of Glen Cove, N. Y., because of suspected intracranial neoplasm. She complained of blurring of vision for three months, which progressed to such an extent that for the month and a half before entry she was unable to read or to write. She had also noted failure of central vision. For two months she had had very severe pains in her feet and legs which were said to have been due to "fallen arches," "contracted arches" and to "arthritis." During the last months handfuls of hair fell out whenever it was shampooed. She had been using Koremlu Cream for fourteen months with daily applications to the face.

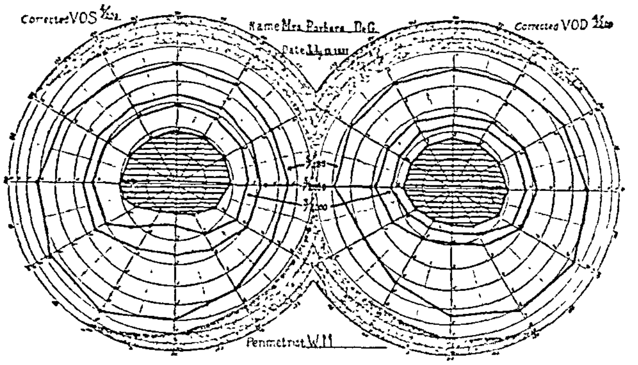

Fig. 2.—Visual fields in case 2.

Examination revealed a visual acuity of 4/200 with marked central scotomas (fig. 2), and a retrobulbar neuritis was noted on inspection of the fundi. The sella was normal by roentgen examination, and laboratory studies were all within limits.

She, too, was advised to discontinue the cream. The pain in her legs disappeared one month after discharge and her visual acuity has improved from 4/200 to 20/70.

Case 3.—*Use of Koremlu Cream. Peripheral neuritis. Failing vision. Nervousness. Falling hair. Low visual acuity with central scotomas. Retrobulbar neuritis. Bilateral motor and sensory involvement of legs.*

Mrs. E. G., aged 35, a Jewish housewife, was referred by Dr. H. E. Davis of Portland, Maine, because of loss of vision and weakness of the lower extremities. For fifteen months she had applied Koremlu Cream to her upper lip and chin nightly. For five months she had pains in the feet and legs and experienced difficulty in walking, which was said to have been due to "fallen arches," to "sciatica" and to "neuritis." With this there was associated weakness of the legs which caused her to be confined to bed until three weeks before entry. Because of the discomfort in her feet she had overlooked her failure of vision, which had existed for probably four months and was so extensive that for three and a half months she had been unable to recognize people. During this time she was also very easily upset emotionally and was especially nervous.

On examination it was found that she had a visual acuity of 3/100, and visual fields showed large central scotomas (fig. 3). There was definite retrobulbar neuritis. Weakness was marked in both legs, with hypotonicity and hypo-active knee and ankle jerks. There was hypesthesia over both legs and tenderness over the calf muscles. Gait was markedly impaired by the weakness as well as by a definite ataxic element. Roentgen and laboratory studies were entirely within normal limits.

Each of these patients gave a history of use of this proprietary depilatory, Koremlu Cream, which has long since been brought to the attention of the Bureau of Investigation of the American Medical Association, and on which the bureau reported[31] with regard to its constituents, all this because of the appearance of peripheral neuritides in people who had been using this cream. The review indicated that the active principle was thallium and the percentage of the acetate present was 7.18, an unusually bold potency in view of Sabouraud's earlier caution to use it so sparingly and in a strength no greater than 1 per cent. In presenting the proprietary cream, the distributors advertise it most attractively, convincingly, and with absolute assurance that no harm will follow its use.

Our concern in this matter has been primarily with the most distressing effect on the nervus opticus. Careful combing of the literature has bared these observations. Richet[32] in 1899, after experimental work, reported that thallium as well as lead produced a noninflammatory keratitis characterized by progressive opacity of the cornea. In 1927 Kaps[29] told of a situation wherein a rat poison containing thallium was given with malicious intent. Typical difficulties followed in the nature of alopecia, peripheral neuritides, with, in addition, failure of vision and retrobulbar neuritis, before dementia and death. In 1928 Buschke[33] and his co-workers reported the experimental production of partial optic atrophy in animals, which they considered to be a new feature. In May of this year Duncan and Crosby[34] from the Cleveland Clinic, in reporting a case of thallium poisoning following the use of Koremlu Cream, spoke of its likeness to lead poisoning because of the cramplike abdominal pains with peripheral neuritis, and casual mention was made that "at times vision was blurred" but ophthalmoscopic examination demonstrated nothing unusual.

SUMMARY

My purpose in this paper is to point out the dangers that follow long-continued use of a preparation containing a liberal percentage of thallium. The three examples presented were patients who entered a neurosurgical clinic as "intracranial tumor suspects" and were found to have an advancing retrobulbar neuritis. Their failing vision has been checked and improved by discontinuing the employment of what, therefore, is the most probable source of the disorder.

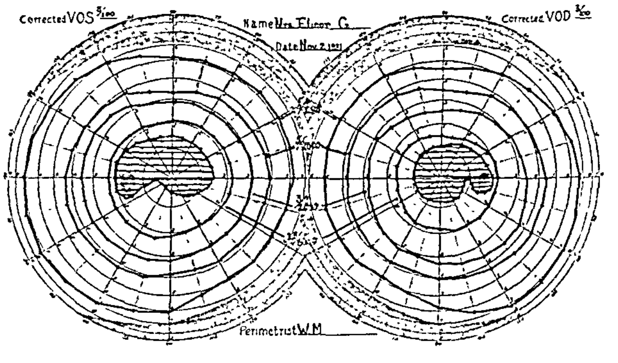

Fig. 3.—Visual fields in case 3.

721 Huntington Avenue.

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[31] Koremlu: A Dangerous Depilatory Containing Thallium Acetate, J. A. M. A. **96**: 629-631 (Feb. 21) 1931.

[32] Richet, C.: Kératites dans l'intoxication chronique par le plomb ou par le thallium, Compt. rend. Soc. de biol. **1**: 253-255, 1899.

[33] Buschke, A.; Löwenstein, Ludwig; and Joel, Walter: Weitere histologische Befunde bei experimenteller chronischer Thalliumvergiftung, Klin. Wchnschr. **7**: 1515 (Aug. 5) 1928.

[34] Duncan, W. S., and Crosby, E. H.: A Case of Thallium Poisoning Following Prolonged Use of a Depilatory Cream, J. A. M. A. **96**: 1866-1868 (May 30) 1931.

INFERTILITY AND STERILITY

AN ANALYTIC STUDY OF THREE HUNDRED COUPLES *

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AND
MICHAEL L. LEVENTHAL, M.D.
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The treatment of sterility has undergone a complete revision in the past decade, chiefly because of the contributions of American gynecologists. This interest was stimulated mainly by the fundamental work of Rubin,[1] Hühner,[2] Reynolds and Macomber,[3] Evans,[4] and Cary.[5] The notable publications of Dickinson,[6] Forsdike,[7] Meaker,[8] Anspach [9] and many others have added greatly to the study of the subject by emphasizing the need for an orderly and complete investigation of the couple rather than of the individual. These authors have shown the value of recording complete case histories and the importance of correlating published reports. Meaker's classification has been widely accepted as a standard for the investigation of the sterile couple and his plan of group study, so successfully put into operation in Boston, is deserving of universal commendation and adoption.

Empiric procedures, such as dilation and curettage, the use of the intra-uterine stem, amputation of the cervix, plastic operations on the cervix, and various uterine suspension operations, have been replaced by the more logical and simple investigative tests, such as Hühner's and Rubin's, and by conservative cautery treatment of the damaged cervix.

MODE OF INVESTIGATION

In the past seven years we have examined and studied 300 couples who came to us because of childlessness. Most of these patients were seen in private practice, and a minority of them were observed in the gynecologic department of Mandel Clinic of the Michael Reese Hospital. In making our investigation we adopted the general plan of Meaker (table 1), having modified it somewhat, and amplified it by the addition of diagnostic pneumoperitoneum and the combined use of utero-salpingography (iodized oil) and pneumoperitoneum. We wish to emphasize the importance of the sequence in which the diagnostic tests are applied in the study of the sterile couple, and also the needlessness of proceeding to completion of the investigation when a definite and final etiologic factor is discovered. For instance, when an aspermia is found on Hühner's and on condom examination, it is unnecessary to proceed to the patency test for the diagnosis of sterility. However, much may be learned, especially in reference to the multiplicity of etiologic factors, if the entire investigation is carried out.

Table 1.—*Modification of Meaker's Plan of Investigation*

- I. Male }
  Female }
  - History
    - (*a*) Past (venereal)
    - (*b*) Present
    - (*c*) Sexual
- II. Female
  - Physical Examination
    - (*a*) General
    - (*b*) Local gynecologic
      - 1. Vagina
        - (*a*) Trichomonas vaginalis
      - 2. Cervix
        - (*a*) Normal (mucus clear)
          - (1) Normal viscosity
          - (2) Tenacious
        - (*b*) Lacerated
          - (1) Ectopion
        - (*c*) Endocervicitis
          - (1) With erosion
          - (2) With mucopurulent discharge
      - 3. Uterus
      - 4. Adnexa
    - (*c*) Laboratory
      - 1. Complete blood count; Wassermann test; Kahn test
      - 2. Sedimentation; urinalysis; blood pressure
      - 3. Cervical smears
        - (*a*) Fresh—hanging drop
        - (*b*) Stained
- III. Female
  - Postcoital Examination (Hühner test)
    - (*a*) Vaginal pool (1-2½ hours after coitus)
      - 1. Amount { (1) Number
      - 2. Consistency................ { (2) Morphology
      - 3. Spermatozoa { (3) Motility
    - (*b*) Aspirated cervical mucus { (1) Number
      - 1. Spermatozoa...... .... { (2) Morphology
      - 2. Pus cells { (3) Motility
      - 3. Tenacity of mucus
- IV. Male
  - Physical Examination
    - (*a*) General
    - (*b*) Urologic
    - (*c*) Condom or ejaculate
- V. Female
  - Tubal Patency (Rubin test)
    - (*a*) Carbon dioxide gas (or air)
      - 1. Antispasmodic drugs
      - 2. Repeated patency tests
    - (*b*) Iodized oil instillation
      - 1. Fluoroscopic examination
      - 2. Roentgenographic examination
      - 3. Roentgenographic examination with combined iodized oil and pneumoperitoneum
- VI. Female
  - Endocrine
    - (*a*) Basal metabolic rate
    - (*b*) Frank's test for female sex hormone in blood
  - Male
  - Endocrine
    - (*a*) Basal metabolic rate

In the management of our patients the performance of the routine diagnostic procedures here outlined was interrupted at any point when examination revealed a definite cause for sterility in the mating. If on the initial gynecologic examination such a pathologic condition was discovered, further tests were postponed pending successful removal of the cause. Furthermore, when the postcoital examination was made and a definite male factor was discovered to account for sterility in the mating, patency tests were not required and usually were not performed. Therefore for purposes of analysis and study of the material we have divided our cases into two groups; namely, those subjected to complete investigation and those subjected to incomplete investigation. Although all couples were investigated to the point of a definite diagnosis, only 175, or 58.3 per cent, required the complete investigation here outlined.

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* From the Michael Reese Hospital.

* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 10, 1931.

[1] Rubin, I. C.: Nonoperative Determination of Patency of Fallopian Tubes in Sterility, J. A. M. A. **74**: 1017 (April 10) 1920; The Nonoperative Determination of Patency of Fallopian Tubes by Means of Intra-Uterine Inflation with Oxygen and the Production of an Artificial Pneumoperitoneum, ibid. **75**: 661 (Sept. 4) 1920; Am. J. Roentgenol. **8**: 120 (March) 1921; Most Favorable Time for Transuterine Insufflation to Test Tubal Patency, J. A. M. A. **84**: 468 (Feb. 14) 1925; Am. J. Surg. **1**: 1 (July) 1926; Am. J. Obst. & Gynec. **14**: 557 (Nov.) 1927; Tubal Patency, J. A. M. A. **90**: 99 (Jan. 14) 1928; Am. J. Roentgenol. **8**: 459 (Aug.) 1921; Surg., Gynec. & Obst. **46**: 87 (Jan.) 1928; Tr. Am. Gynec. Soc. **52**: 123, 1928; Radiology **11**: 115 (Aug.) 1928; Arch. f. Gynäk. **138**: 1, 1929; Am. J. Obst. & Gynec. **17**: 484 (April) 1929; New and Improved Apparatus for Uterotubal Insufflation, J. A. M. A. **92**: 1597 (May 11) 1929; Am. J. Obst. & Gynec. **20**: 28 (July) 1930.

[2] Hühner, Max: Sterility in the Male and Female, New York, Rebman Company, 1913; New York M. J. **113**: 678 (May 4) 1921.

[3] Reynolds, Edward; and Macomber, Donald: Defective Diet as a Cause of Sterility, J. A. M. A. **77**: 169 (July 16) 1926; Am. J. Obst. & Gynec. **2**: 379 (Oct.) 1921; Sterility and Fertility in Human Marriages, Philadelphia, W. B. Saunders Company, 1924.

[4] Evans, H. M., and Burr, G. O.: Vitamin E, J. A. M. A. **88**: 1462 (May 7) 1927; Proc. Soc. Exper. Biol. & Med. **24**: 740 (May) 1927.

[5] Cary, W. H.: Am. J. Obst. **69**: 452, 1914; **74**: 615, 1916; Am. J. Obst. & Gynec. **6**: 723 (Dec.) 1923; M. J. & Record **130**: 1 (July 3) 1929; New York State J. Med. **30**: 131 (Feb. 1) 1930.

[6] Dickinson, R. L.: Am. J. Obst. & Gynec. **2**: 600 (Dec.) 1921; **6**: 607 (Nov.) 1923; **11**: 51 (Jan.) 1926.

[7] Forsdike, Sidney: Sterility in Women, New York, William Wood & Co., 1928.

[8] Meaker, S. R.: Boston M. & S. J. **187**: 535 (Oct. 12) 1922; **190**: 286 (Feb. 21) 1924; **197**: 773 (Nov. 3) 1927; Use in Sterility of Antispasmodic Drugs in Combination with Transuterine Insufflation of Gas, J. A. M. A. **82**: 2098 (June 28) 1924; Working Classification of Causes of Sterility, ibid. **90**: 111 (Jan. 14) 1928; Organization of Sterility Clinic, ibid. **91**: 384 (Aug. 11) 1928; Constitutional Factors in Causation of Sterility, ibid. **92**: 1493 (May 4) 1929; New England J. Med. **201**: 160 (July 25) 1929; Am. J. Obst. & Gynec. **18**: 261 (Aug.) 1929; J. Med. **11**: 364 (Sept.) 1930; Am. J. Obst. & Gynec. **20**: 749 (Dec.) 1930.

[9] Anspach, B. M.: Am. J. Obst. & Gynec. **19**: 1 (Jan.) 1930.

We have varied somewhat from the usual classification of sterility and infertility, as we have not considered time alone as a cause for sterility. The couples whom we found on investigation to possess the necessary requisites of fertility (Meaker) but who nevertheless did not reproduce we classed as infertile rather than as sterile, regardless of the number of years of marriage. Primary infertility or sterility included those patients in whom no pregnancy had occurred either in the present or in a previous mating, and secondary infertility or sterility included those in whom conception had occurred one or more times in the mating of either partner or of both together. Fifty-seven (19 per cent) of the 300 matings were classed as infertile, as a result of a complete investigation. Forty-seven showed primary and ten secondary infertility. Of the 243 sterile couples, 125 required incomplete investigation to establish the diagnosis. There were 181 cases, or 74.5 per cent, diagnosed as primary, and 62, or 25.5 per cent, as secondary sterility. We found female factors in 217 (89.4 per cent) of the couples, male factors in 70 (28.8 per cent) and both male and female factors in 44 (18.1 per cent) of the 243 couples in which sterility was diagnosed. Had we adopted the usual three year criterion for childless marriage (or 2½ years, Polak [10]) we would have shown a larger percentage in the sterility group.

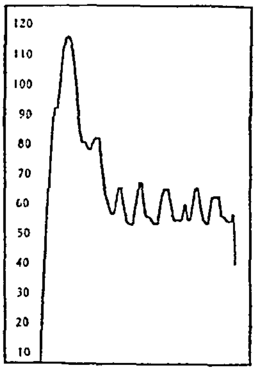

Fig. 1.—Kymographic tracing: patent fallopian tubes.

There is no good reason for postponing a sterility investigation in a couple desiring offspring, even though they may have been married only a short time. For in the course of such an early investigation some obvious cause of sterility may be discovered which on removal may be promptly followed by pregnancy.

FEMALE CAUSES OF STERILITY

In listing the causes of sterility from our charts, we observed that the usually recognized female causes are outstanding in this series, and that these also overlap. In the 243 women in the sterility group, these factors are bilateral tubal obstruction, 20.5 per cent; previous abortion, 16.46 per cent; uterine hypoplasia, 14.4 per cent; chronic endocervicitis, 16.04 per cent; pelvic peritonitis, 12.34 per cent, and salpingitis and perisalpingitis, 19.75 per cent. The remaining causes comprised a list of about twenty-five conditions. We have not included gonorrhea as such as an etiologic factor but have listed the pathologic conditions which we found resulting from this infection. Syphilis, on the other hand, is mentioned under both male and female causes, as gross genital changes due to syphilis are rarely observed. We were surprised to find so small a number of cases of sterility in our series in which the Wassermann and Kahn tests were positive.

MALE STERILITY

Male virility tests were made in 249 (83 per cent) of the entire series. The Hühner postcoital examination was made in 219 cases, a condom or ejaculate in 98 cases, and both postcoital and condom tests in 57 couples. No test for spermatazoa was made in fifty-one cases, chiefly for three reasons: First, the patient failed to return for the test in fourteen instances. Second, gross female pelvic pathologic changes sufficient to account for the sterile mating were found on physical examination in fourteen women, obviating the necessity of a sperm test until the female cause was removed. Third, in five instances there had been unsuccessful coitus (no intromission) because of intact hymen, even as long as five years after marriage! We are not publishing a list of male causes of sterility for the following reasons: First, it was not always possible to induce the male partner to report for a genito-urinary examination. Second, if the husband consented, he often chose to visit a urologist of his acquaintance, whose reports were often incomplete and indefinite. Third, the urologist sometimes reported on a condom specimen or ejaculate only, failing to report a local anatomic diagnosis. Fourth, only rarely was a constitutional fault reported in case of the male. Hence obesity, which appears as a diagnosis thirty-one times in the female list, was reported only twice in the diagnoses received from the urologist. This is obviously an error of omission.

THE POSTCOITAL TEST

In spite of the conclusions of Moench [11] that the postcoital test is not final, we have placed great stress on it and feel that it is essentially informative. The patient on whom a test is to be made is carefully instructed in accordance with the advice of Cary and Dickinson [12] regarding preparation and presentation at the office for Hühner's test. When a number of normally formed, actively motile spermatozoa are found in the mucus aspirated from the cervical canal from one to two and a half hours after coitus, we believe that the male is competent. He has proved his ability to deliver living

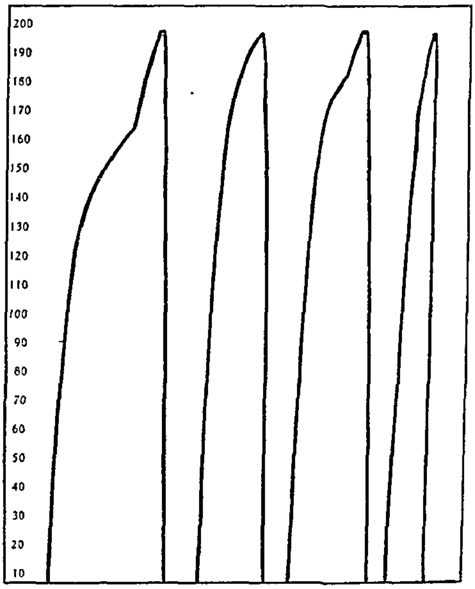

Fig. 2.—Kymographic tracing: apparent obstruction of fallopian tubes; slight shoulder pain and repeated test subsequently proved only partial obstruction in the one remaining tube. (Right tube removed previously.)

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[10] Polak, J. O.: Surg., Gynec. & Obst. **44**: 520 (April) 1927.

[11] Moench, G. L.: Am. J. Obst. & Gynec. **13**: 334 (March) 1927; **17**: 53 (July) 1929; Evaluation of Motility of Spermatozoa, J. A. M. A. **94**: 478 (Feb. 15) 1930.

[12] Dickinson, R. L., and Cary, W. H.: Sterility, J. A. M. A. **88**: 1 (Jan. 1) 1927.

male elements into the environment favorable for their preservation. Here they may exist for many hours unmolested by acid secretions, and by means of their own motility the spermatozoids may reach the fallopian tubes, where fertilization of the ovum occurs. Constitutional faults, as Meaker and others have conclusively shown, may render the sperm relatively infertile, but with treatment the male fertility may be increased and the fertility threshold of the couple be raised. The vaginal pool is less of a criterion than the endocervical content. As a rule, a small fluid pool of grayish, milky fluid is found in the receptaculum seminis, and in favorable cases numerous actively motile, normally formed spermatozoids will be found after coitus. We have found them as long as four hours after coitus, still moving. On the other hand, the finding of only immotile forms in the vagina is a frequent occurrence and is not serious, provided a satisfactory sample is obtained by aspiration from the cervical canal. We have not considered it necessary or advisable to explore high up into the uterine cavity for samples. If our postcoital examination is not entirely satisfactory, a condom specimen or ejaculate is requested of the husband, also a urologic examination. Repeated Hühner tests after a week or two of abstinence from marital relations occasionally prove satisfactory after an initial failure. It is interesting to note that, in six cases in which no live spermatozoids were found in the cervix after coitus, the urologists' reports of condom specimens were satisfactory, but that, contrarywise, in no instance of a diagnosis of sterility from the condom specimen was a positive Hühner reaction found. This emphasizes the necessity of a condom or ejaculate check-up in all cases of negative postcoital examinations. It does not, however, negate the value of Hühner's test. We have found in many instances that the husband is willing to have his wife present herself for the postcoital test, although he himself is unwilling to be examined by a urologist.

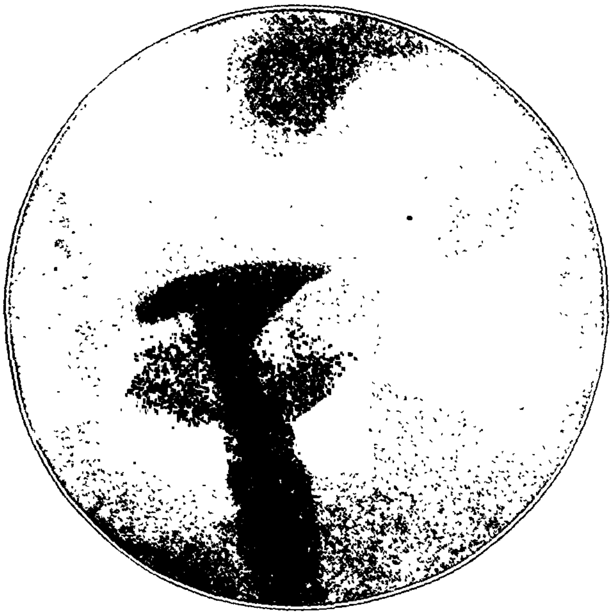

Fig. 3.—Transabdominal pneumoperitoneum reveals uterus and adnexa clearly. Iodized oil entered the right tube only. Apparent unilateral closure.

Many of the matings in which no male virility test was made proved fertile after gynecologic treatment was instituted, and pregnancy occurred before it was considered necessary to check up the Hühner and patency tests. This was particularly true in the cases in which there had been no previous intromission and in the amenorrhea group, to be referred to later.

TUBAL PATENCY TEST

Patency tests were carried out in 206 (68.6 per cent) of our patients. This included all the women in the infertility group and 149 (61.3 per cent) of the sterility group. Bilateral tubal obstruction was diagnosed in fifty women in the latter group. Of these, twenty-seven were fimbrial closures, as diagnosed by patency test and iodized oil, twenty-one were cornual, and only two were isthmial. Unilateral tubal obstruction was found in eight cases, in which five were cornual, two fimbrial and one isthmial.

No patency test was done in ninety-four women because: (*a*) a male cause for the sterility was discovered on the postcoital and condom tests; (*b*) gross female pathologic changes accounting for the sterility were discovered on bimanual examination, often of such a nature as to contraindicate the test; (*c*) the patient failed to return for the test. In seventy-nine women in this group, diagnostic pelvic pneumoperitoneum was done by the transuterine or transabdominal route, which proved of great value in clarifying the diagnosis. We (Stein and Arens[13]) have previously described the technic of this diagnostic procedure and have repeatedly emphasized its value, not only for a more precise diagnosis in sterile women but also for differential diagnosis in other puzzling gynecologic conditions. We have found pneumoroentgenograms, carbon dioxide being used alone or in combination with the instillation of iodized oil into the uterus and fallopian tubes, of the utmost value.

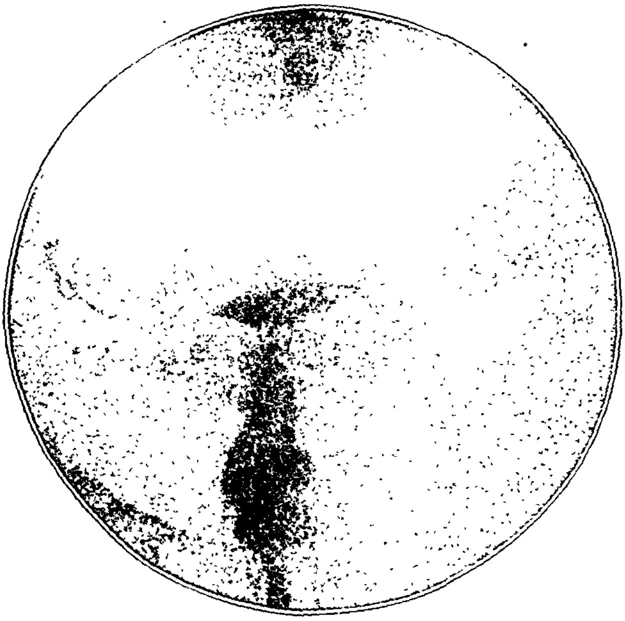

Fig. 4.—The same patient as in figure 3, one hour later. Both tubes were filled with iodized oil and the spill appeared from both fimbriated ends. (Unilateral or asynchronous spasm.)

It is with some hesitancy that we record a practice which we have adopted in a selected group of women. Following a verbal suggestion of L. Fraenkel of

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[13] Stein, I. F., and Arens, R. A.: Radiology 7: 326 (Oct.) 1926; Iodized Oil and Pneumoperitoneum Combined in Gynecologic Diagnosis, J. A. M. A. 87: 1299 (Oct. 16) 1926; Radiology 8: 494 (Jan.) 1927; Am. J. Obst. & Gynec. 15: 707 (May) 1928; Radiology 12: 341 (April) 1929; Am. J. Obst. & Gynec. 18: 130 (July) 1929; Radiology 15: 85 (July) 1930.

Breslau during a visit which he made to this country some time ago, we performed the patency test immediately after a satisfactory postcoital test with the expectation of enhancing the possibility of pregnancy. This, of course, was done only in the presence of the conditions requisite for safety of the test, and one week after completion of the menstrual period. We do not feel, however, that pregnancy occurred sooner or in a greater number of cases than it would have occurred if the patency test had been done independently. We believe that the procedure is a safe one, provided the semen specimen is free from pus and bacteria, and no purulent endocervical secretion is present. There were no ill effects in approximately two dozen tests made in this manner.

Rubin has described the various phases of tubal patency so completely and has recorded his vast experiences so lucidly that we hesitate to devote much space to the subject. The question of the interpretation of tubal obstruction, however, merits some discussion. When the fallopian tubes prove patent on being tested with carbon dioxide, a characteristic graph is obtained (fig. 1) with the kymograph, or a subdiaphragmatic pneumoperitoneum may be observed with the fluoroscope. Shoulder pain usually ensues when the patient arises, but reliance on this symptom is not advisable. Neither should one rely on auscultation. When, however, there is obstruction to the flow of gas, the mercury manometer will show a gradual and steady rise to 200 mm., the advised limit of safety, and a different graph is obtained (fig. 2). This observation on a single test, however, does not necessarily signify a pathologic obstruction. Repeated patency tests with the utilization of antispasmodic drugs advised by Meaker many years ago have proved most useful in eliminating some of the spastic obstructions. The use of radiopaque oils, however, has done even greater service, for with the aid of an iodized oil one may observe fluoroscopically or record roentgenographically the filling or the failure to fill of one or both fallopian tubes.

We do not feel, as does Rubin, that the site of tubal obstruction can be positively located by the site, severity and radiation of pain. A great variation in sensibility exists among women, and often unreliable conclusions are drawn from the patient's complaint of pain. In eleven cases in this series, curves characteristic of bilateral tubal obstruction were obtained, but on repetition of the test by the instillation of iodized oil the fallopian tubes were found patent. Again, three cases in which patency was proved satisfactory with gas, and a transuterine pneumoperitoneum was induced, showed an apparent cornual obstruction to iodized oil. These are typical cases of cornual spasm. True bilateral obstructions can be definitely proved only on prolonged and repeated observation after instillation of iodized oil and after films taken at intervals over a twenty-four hour period. Spasm is initiated, as a rule, in the uterine cornua rather than in the tubal isthmuses. Evidence of asynchronous contraction of the uterine cornua and fallopian tubes is shown in cases of apparent unilateral obstruction (fig. 3) which on subsequent test or on laparotomy are found to be patent (fig. 4).

The use of pelvic roentgenograms taken after combined pneumoperitoneum and instillation of iodized oil often clears up the diagnosis in cases of questionable results by revealing a pathologic mass in one or both adnexa, or by clearly showing normal adnexa in cases of spasm. A complete discussion of the interpretation of roentgenograms by this method has previously been published by one of us.[14] From our experience with diagnostic pneumoperitoneum (600 cases in nine years), we would urge its more frequent use as an aid to gynecologic diagnosis. When this method is used in combination with the instillation of iodized oil, a maximum of information concerning the pelvic status may be obtained on the roentgen film, exceeded only by that obtainable at laparotomy. We have frequently checked up the roentgen observations, utilizing the combined method with those revealed at subsequent laparotomy, and have thus proved the accuracy and value of such films. On the other hand, we have often revealed a normal pelvic status on the roentgen film, obviating the necessity of laparotomy in cases of suspected pathologic changes. This procedure has practically eliminated the exploratory laparotomy in our practice. Underdevelopment and maldevelopment of the genital tract have been accurately demonstrated by us by this means; we have observed arcuate, bicornate, septate and double uteri, differentiated by means of the instillation of iodized oil and often associated unilateral and bilateral ovarian swellings which were clearly visualized by the pneumoperitoneum.

SURGICAL TREATMENT OF STERILITY

Of a total of 300 women examined for sterility in this series, 80 were treated more or less surgically (table 2). By far the greatest number were treated in the office, for the cure of chronic endocervicitis. We have employed the method of Dickinson, linear cauterization, with entire satisfaction, using a fine platinum loop about 1 inch in length, at cherry-red heat. Occasionally, cauterization required repetition after four or six weeks, and rarely there was troublesome bleeding after the cautery treatment. The end-result was extremely gratifying, leaving a normal appearing cervix, free from purulent discharge.

Table 2.—*Surgical Treatment in Sterility Group (Female)*

Type of Treatment		Cases
Linear cauterization of cervix		21
Dilation of hymen and vagina under anesthesia		2
Perineotomy*		1
Removal of complete vaginal septum		2
Trachelorrhaphy		1
Tracheloplasty (Sturndorf)		1
Curettage for polypi		2
Posterior colpotomy for abscess		1
Myomectomy		2
Hysterectomy (calcified fibroids)		1
Hysterectomy (irreparable inflammation)		4
Uterine suspension		1
Plastic resection ovary		6
Unilateral	4	
Bilateral	2	
Oophorectomy		12
Dermoid (unilateral)	2	
Tubo-ovarian disease (unilateral)	7	
Tubo-ovarian disease (bilateral)	3	
Salpingectomy		15
Unilateral	9	
Bilateral	6	
(4 with hysterectomy)		
Salpingostomy		5
Pregnancy followed		2
Separation of perisalpingeal adhesions		1
Total		80

We wish to call attention to the fact that the operation of dilation and curettage appears only twice on our list, and in both instances it was indicated by the presence of cervical polypi. In no case was the operation performed empirically as a curative measure. Uterine suspension was done only once in this series, although retroversion was found in eighteen cases. We do not

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14. Stein, I. F.: Surg., Gynec. & Obst. **42:** 83 (Jan.) 1926; S. Clin. North America **7:** 777 (Jan.) 1927; Illinois M. J. **54:** 359 (Nov.) 1928; Am. J. Obst. & Gynec. **21:** 671 (May) 1931.

feel that uterine displacement is an important cause of sterility. If the postcoital test reveals that the cervix is not inseminated, then correction of the malposition is indicated. Postural treatment and pessary insertion prove satisfactory in a good proportion of cases. Plastic resection of the ovary was done in six instances in which one or both ovaries were found cystic. In one of these patients bilateral polycystic ovaries were resected after failure of organotherapy and dietary management. This woman was 25 years old, had been married four years, and was under treatment for sterility for almost a year. Transuterine pneumoperitoneum, after a successful patency test, revealed the fact that each ovary was almost the size of the uterine fundus and was irregular in outline. Menstruation had always been scant and irregular. At laparotomy the cystic portion, about three fourths of each ovary, was removed by wedge-shaped resection, and subsequently a course of female sex hormone was administered. Coitus was resumed two months after operation, and pregnancy occurred three months later. The patient delivered an 8 pound baby at term.

More or less skepticism has been shown on the part of conservative gynecologists concerning the advisability of performing salpingostomy in cases of closed fallopian tubes. After careful selection of cases, we performed this operation on five patients in our series (table 2). Pregnancy occurred subsequently in two of these patients (one and two years after) and was carried to full term in each instance. In none of the patients on whom we performed salpingostomy was tubal pregnancy observed, but in one patient under our care who had had a salpingostomy elsewhere and had delivered one normal full term child since the operation, a tubal pregnancy developed. If the tubal closure is fimbrial and due to old perisalpingeal adhesions, and the tubes are otherwise normal, salpingostomy is likely to be successful in about 10 per cent. This operation, however, should be undertaken only after the male partner has been found to be virile. After salpingostomy the tubes should be tested with gas or iodized oil at intervals to prove that they remain open. Other surgical procedures devised to obviate bilateral tubal obstruction, such as ovarian and tubal transplantations into the uterus, are usually failures and may prove disastrous.

MEDICAL TREATMENT

Another group of patients were treated essentially medically. These were the obese women, those with hypoplasia, amenorrhea or hypomenorrhea and those with nutritional disturbances. In the treatment of our patients we have emphasized the use of foods essentially rich in vitamin E, but we wonder how much value such a diet has in the human adult. There is no doubt of its value in experimental animals. In some of the obese patients having normal metabolism we have followed Meaker's advice to increase the amount of protein in the diet, with some success.

Patients complaining of amenorrhea and hypomenorrhea, whether they were associated with obesity or not, have been treated in the past with various endocrine substances with but little favorable result. More recently we used the female sex hormone preparations with a hope of success in this class of patients. The tablet form first used, by mouth, yielded no appreciable result. In the past year we have used a preparation of female sex hormone in ampules, each representing 100 mouse units (Allen and Doisy standard) administered intramuscularly in thirty-five women. Of twenty-eight of these in whom the essential complaint was amenorrhea, eighteen responded with more or less regular menses, four failed to menstruate, and six failed to report the results. Several of the women who responded to therapy with the female sex hormone had previously failed with ovarian, pituitary, corpus luteum, thyroid, estrogen, and other glandular extracts. One of them had taken roentgen therapy of the ovaries six months previously without result. Of the seven cases of uterine hypoplasia associated with hypomenorrhea or amenorrhea, five responded with increased menstrual function and a palpable increase in the size of the uterus.

Ten patients in this series complained of sterility in addition to amenorrhea, and five of these have become pregnant after treatment with the preparation of the female sex hormone. In these cases pregnancy was not recognized until two or three menstrual periods had lapsed, and the hormone treatment had been continued in pregnancy. They were first looked on as failures to relieve the amenorrhea, for the patients suffered no nausea or vomiting or other usual symptoms of early pregnancy. The breasts were slightly enlarged, but this symptom is commonly observed when using glandular preparations. Because of complete absence of nausea in these women who were previously treated with the hormone, the latter was given in daily doses of two ampules (200 mouse units) to five patients suffering with severe hyperemesis. In four cases the relief was strikingly prompt, a result we never observed when using corpus luteum. Although we realize that this represents a small series, from which definite conclusions may not be drawn, we do feel encouraged by our results, and we believe that the newer preparations of the female sex hormone are deserving of further trial.

PREGNANCY AFTER STERILITY INVESTIGATION

There can be no doubt that the patency test is of therapeutic as well as of diagnostic value. Of the fifty-seven matings classified by us as infertile, fifteen, or 26.3 per cent, of the women became pregnant after the patency tests, without other than dietary treatment and instruction in sex habits. Many of these conceived so promptly after proving patency of the tubes that the results must be credited to the insufflation. Others, again, conceived only months or more than a year after the test. These could not fairly be ascribed to any direct effect of the patency test. In some cases in which we found both of the couple competent but learned that the sex act had become more or less a matter of indifference and of infrequent occurrence, we have advised the reading by the husband and wife together of certain works on sex hygiene. These books serve as erotic stimulants by vividly portraying in detail the sex act, various postures for its performance, and even perverted practices, the adoption of which some of the authors recommend. Although the description of the latter is unnecessary and is revolting, and its inclusion in works on sex hygiene is regrettable, these books do serve a useful purpose in selected mating, despite this objectionable feature. In a small percentage of couples in our series we believe that the sexual awakening caused by the reading of carefully selected books on sex hygiene resulted in a greater interest in sexual practice, increased libido, increased frequency of orgasm and, shortly, in pregnancy. One of the couples mentioned had been married ten years without conception and had undergone repeated sterility investigations under various specialists without effect. Shortly after sex instruction was given by us the couple interested themselves in sex literature, and pregnancy occurred.

According to most authorities, about 10 per cent of all matings are barren. The 300 couples analyzed in this study fall into this class. As a result of our investigations and treatment. conception occurred in approximately one fifth (19.3 per cent) of the cases, which represents fifty-eight pregnancies.

Forty-three of these were in patients in the sterile and fifteen in the infertile group. The latter figure reveals a high proportion (26.3 per cent) of fertility in the group usually classed as sterile. Fifty of the pregnancies carried to full term, and five patients are in the first half of pregnancy at the time of this writing. Only three patients (5.17 per cent) aborted.

Table 3.—*Pregnancy in the Sterility Group*

			Years	Diagnosis		Treatment			
No.	Age	Primary or Secondary	Sterile or Since Last Pregnancy	*Female*	*Male*	*Female*	*Male*	Conception After Treatment	Termination
1	33	Primary	11	Hypoplasia; obesity	Normal	Patency; organotherapy	None	5 years	Abortion, 10 weeks
2	23	Primary	4	Hypoplasia; obesity	Normal	Patency; organotherapy	None	3 months	Term
3	20	Primary	2½	Suppuration of appendix with drainage	Normal	Patency; organotherapy	None	6 months	Term
4	28	Primary	2	Ovarian cyst	Normal	Removal of cyst	None	12 months	Term
5	31	Primary	11	Obesity; retroversion	Aspermia: atrophy of testes	None	None	2 months	Term (husband)
6	28	Primary	3	Fibroids; perisalpingitis	Normal	Myomectomy; bilateral salpingostomy; iodized oil	None	1½ years	Term
7	27	Primary	1	Not made	Oligospermia	Patency, 4/10/29	None	L. P. 7/24/29 (1 month)	Term
8	32	Primary	1	Barth. cyst; endocervicitis	Normal	Cautery; excision of cyst	None	1 month	Term
9	25	Secondary	2	Endocervicitis; perisalpingitis; retroversion	Normal	Gilliam suspension; salpingostomy	None	2 years	Term
10	26	Primary	3	Endocervicitis; obesity	Normal	Cautery; endocrine patency	None	2 months	Term
11	26	Primary	1	Endocervicitis	Normal	Cervix patency	None	5 months	Abortion, 2-3 months
12	34	Primary	16	Previous curettage	Oligonecrospermia; obesity	None	Thyroid and prostatic massage	2 months	Term
13	22	Primary	2	Obesity; amenorrhea	Normal	Organotherapy	None	1 month	Term
14	30	Primary	7	Endocervicitis	Normal	Cervix patency	None	2 years	Term
15	30	Secondary	2	Endocervicitis	Normal	Cautery patency	None	7 months	Term
16	25	Primary	1	Unilateral hydrosalpinx	Normal	Removal hydrosalpinx	None	3 months	Term
17	22	Primary	2	Obesity; hypoplasia	Normal	Organotherapy	None	9 months	Term
18	26	Primary	6	Hypoplasia; amenorrhea	Chronic vesiculitis	Endocrine patency	G. U. treatment	3 years	5-6 months pregnant
19	26	Primary	5	Endocervicitis	Normal	Cautery patency	None	3 months	Term
20	35	Secondary	4	Previous salpingostomy	Normal	Repeated patency; iodized oil	None	2 months	Ectopic
21	26	Primary	3	Endocervicitis	Normal	Cautery patency	None	2 months	Term
22	25	Primary	5	Intact hymen	Normal	Perineotomy	None	3 months	Term
23	20	Primary	1	Amenorrhea; Shus.	Normal	Female sex hormone	None	Menstruation once after five ampules	Term
24	24	Primary	4	Obesity; amenorrhea; dilation; ovarian cysts	Normal	Diet; bilateral resection of ovaries; female sex hormone	None	5 mos. after operation; female sex hormone	Term
25	31	Primary	10	Normal	Oligospermia	None	Massage of prostate	2 months	Term
26	30	Secondary	4	Obesity	Normal	Patency; organotherapy	None	5 months	Term
27	29	Primary	6½	Previous D. and C.	Normal	Patency 5/8/30	None	L. P. 7/8/30 2 months	Term
28	29	Secondary	3	Previous ectopic gestation with fever	Normal	Patency	None	4 months	Term
29	23	Secondary	2	Retroversion	Normal	Vaginal pessary	None	2 months after correction	Term
30	23	Primary	2	Vaginismus	Normal	Sex instruction: *dilation of vagina*	None	1½ years	Term (twins)
31	26	Primary	4	Endocervicitis	Normal	Cautery patency	None	6 months	Term
32	27	Primary	1	Double uterus and vagina	Normal	Removal septum vagina; iodized oil	None	1 mo. after operation	Term
33	31	Primary	3½	Fibroids	Normal	Patency 11/21/29	None	L. P. 1/31/30 2 months	Term
34	28	Primary	3	Retroversion	Normal	Patency; sex instruction; diet	None	2 months	Term
35	30	Secondary	3	Previous operations; abortion	Normal	Repeated patency	None	1 month	Term
36	25	Primary	2½	Obesity; endocervicitis	Oligospermia and necrospermia	Endocrine cautery	Prostatic *massage*	3 months	Term
37	26	Primary	2	Intact hymen	Normal	Perineotomy	None	2 months	Term
38	22	Primary	3	Amenorrhea 6 months	Normal	Female sex hormone; x-rays	None	No result from roentgen therapy; pregnancy during treatment with female sex hormone	Term
39	22	Primary	3	Vaginismus	Normal	Dilation of vagina	None	2 months	Term
40	23	Secondary	5	Retroversion	Normal	Posture; patency; exercise	None	6 months	Term
41	27	Secondary	3	Obesity; endocervicitis	Oligospermia	Organotherapy; cautery	Thyroid	1 mo.; husband treated with thyroid	2½ months pregnant
42	29	Primary	2	Amenorrhea	Normal	Female sex hormone	None	2 months	Term
43	35	Secondary	8½	Amenorrhea 5 months	Normal	Female sex hormone	None	1 month	Term (twins)

The pregnancies referred to include only a single gestation after the completion of the sterility study. There were, in addition, five patients who had more than one pregnancy after completion of the tests, and in one patient tubal pregnancy developed while she was in our care. This woman had had a salpingostomy previous to our investigations and had given birth to a full term child since the operation. One pregnancy included in our series occurred after a three year period of sterility following a tubal pregnancy.

SUMMARY

1. Three hundred couples presenting sterility problems have been examined and treated, and the results are analyzed. The importance of a rational sequence of investigative procedures is stressed.
2. We have excluded from the diagnosis of sterility all couples who meet with the fundamental requisites of fertility even though married three years or more. These were grouped under the classification of infertility.
3. Female causes were found in 89.4 per cent, male causes in 28.8 per cent, and both male and female in 18.1 per cent of the sterile matings.
4. The outstanding female causes were obstructions of the fallopian tubes, chronic endocervicitis, and uterine underdevelopment. Pathologic conditions leading to aspermia and necrospermia were chiefly the male faults.
5. Tubal patency tests were carried out in 206 women in this series. In the infertility group they were done in 100 per cent and in the sterility group in 61.3 per cent of cases. The interpretation of apparent tubal obstruction is discussed and the value of roentgenograms, combined uterosalpingography and pneumoperitoneum being used, is emphasized.
6. In the medical treatment of sterility one new substance has been found of value; namely, a preparation of the female sex hormone.
7. The surgical treatment of sterility has undergone complete revision. Linear cauterization for chronic endocervicitis was the most frequently used method in our series. Salpingostomy was done in five cases, carefully selected, with subsequent pregnancy in two.
8. Pregnancy occurred in 58 women after our investigation and treatment, or 19.3 per cent for the entire series of 300 women. In those grouped as infertile matings, pregnancy resulted in 26.3 per cent and in the sterile matings in 17.3 per cent.

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ABSTRACT OF DISCUSSION

Dr. I. C. Rubin, New York: In spite of a demonstrable generative impotence of the husband, the question is sometimes raised by the wife for reasons entirely her own as to whether or not she may be suffering from some obstacle to conception. In such instances there can be no objection to insufflating the tubes and pursuing the investigation as completely as possible. There are many cases in which the investigation cannot be complete, for reasons already stated by the authors. In a series of over 3,000 in my sterility cases, 1,034 presented conditions contraindicating insufflation. An idea of the functional status of the tubes can be obtained in the ordinary routine performance of tubal insufflation, with the aid of the kymograph. Some of the slides that were shown demonstrated this. We have not only established the factor of tubal nonpatency or of tubal patency in these cases, but we have also learned to recognize what is normal patency, which is tremendously important, I think, in an investigation of the sterile mating. In a series of 2,136 cases in which insufflation was done, pregnancy occurred in 216 of my primary sterility group and in 134 of the secondary sterility group. If the nonpatency cases in both groups, i. e., 537 cases, are omitted, there is a pregnancy incidence of 20 per cent in the primary sterility group and of 24 per cent in the secondary sterility group. I agree with Drs. Stein and Leventhal that the time interval generally accepted as designating a sterile marriage is perhaps too arbitrary. This is particularly true in the cases of elderly couples who cannot lose much time in seeking aid and getting it. In the cases with amenorrhea, I have had to resort to roentgen treatment by fractional doses. In a series of fifty-five cases I have had twenty-six pregnancies. Drs. Stein and Leventhal may be congratulated on the results obtained in such cases by the use of the newer hormonal extracts. If their results can be reproduced by others, we shall be in possession of a specific hormonal remedy which has been long awaited in this class of functionally depressed sterile women.

Dr. Philip H. Smith, Evanston, Ill.: I frequently find that patients are surprised to learn what constitutes the routine investigation of sterility and that the observation may take weeks, months, perhaps a year or two years. For that reason I have found useful a small card of printed instructions, given to the patient on the first visit, briefly outlining about what I expect to do and what I expect of each member of the union. This seems to stimulate interest, and the patient knows what to expect. I believe with Drs. Stein and Leventhal that too much stress cannot be placed on the postcoital test. The presence of active, motile spermatozoa of normal morphologic structure in the cervical canal can leave little doubt as to the competence of the male. However, in a certain number of cases in which there are no demonstrable pathologic changes and in which the tubes are patent, as demonstrated by the insufflation test, I believe one is correct in presuming that the male has a lowered fertility, and I like to make a study of his specimen myself. Finding it abnormal, I refer him to the urologist for treatment. Instructions as to diet, exercise, sexual activity, I like to give myself. I believe that these instructions are of great importance in cases of lowered fertility. The injection of iodized oil is highly beneficial in cases in which the diagnosis is a little obscure, and in the presence of tubal obstruction it will definitely locate it. However, I believe it should follow the third, certainly the second, insufflation test because of the added information to be gained by repeated tests and because of the therapeutic value of the test. Foci of infection in the teeth, tonsils, sinuses, and so on play an important part in abortion and the toxemias of pregnancy, and they may have something to do with puerperal fever. I don't believe it is wrong to assume that they play an equally important part in sterility in a great many cases. One of the earliest steps one should take is to have these foci carefully checked. I do not believe that salpingostomy should be resorted to as a means of curing sterility except, as stated by Dr. Curtis, in cases in which the motive for operation is relief of pain or distress.

Dr. Charles Mazer, Philadelphia: Amenorrheal and irregularly menstruating women are admittedly of low fertility. Regularly menstruating sterile women in whom one cannot find an ascertainable cause for the existing sterility present a problem in diagnosis. These women, as a rule, do not show evidence of genital hypoplasia. In order to eliminate an endocrine factor, I have subjected forty-two of these patients to a premenstrual curettage and have simultaneously abstracted 80 cc. of venous blood to ascertain the level of female sex hormone. The test was performed in duplicate. Twenty-five of these regularly menstruating sterile women did not show any microscopic evidence of a nidatory endometrium; and only four of the twenty-five showed a demonstrable quantity of female sex hormone in the blood. The lack of the nidatory endometrium in these women is indicative of faulty luteinization. Some of the patients presented stigmas of an existing endocrinopathy. The majority, however, appeared normal. The close relationship between a negative Frank and Goldberger test and an absence of the nidatory endometrium in this class of women shows that there is no actual need to perform a premenstrual curettage; the Frank and Goldberger test when performed in duplicate is apparently sufficient in the diagnosis of endocrine sterility in regularly menstruating women.

Dr. Raymond E. Watkins, Portland, Ore: The authors state that 36 per cent or thereabouts of the patients were sterile because of inflammatory conditions in the pelvis. Another statement regarding these inflammatory conditions or, rather, the occlusions of the lumen of the tube was that the occlusion occurred in the interstitial portion of the tube in the majority of the instances according to the injection of iodized oil. Last year, in a study of fifty fallopian tubes removed at the time of operation, it was found that the majority of inflammatory occlusions occurred in the isthmian portion of the tube rather than in the interstitial; that the next largest proportion was in the interstitial, and the fewest in the fimbriated portion of the ampullar part, or the fimbriated end of the tube. The type of the occlusion was usually a circular constriction due to an inflammatory reaction of the tube as a result of the infection. In gonorrhea there is a tendency for the infection to extend below the mucosa, not only destroying the mucosa but extending into the musculature, producing small abscesses. The latter were demonstrated by the injection of bismuth into the tube, showing multiple diverticula running down into the healed abscess cavities in the musculature. As a result of this infection there is the formation of a good deal of scar tissue, which secondarily contracts, producing the constriction or occlusion. I am discussing this phase of the subject largely to show the futility of attempting to overcome the obstruction in the isthmian portion of the fallopian tube by operation. Operative procedures do little or no good. Time is the great element here in the cure of these infections. Any one who has watched these women for a period of time knows that eventually a few become pregnant but not a great many. The postabortal infection is a different type. It affects the peritubal structures and the cellular tissue, and is not a mucous membrane destroyer. It sometimes produces external adhesions that will constrict the fallopian tube and obstruct its lumen. If the fimbriated end of the tube can be gently opened by the use of the hemostat or blunt instrument, provided the interstitial and isthmian portions are patent and can be carefully spread apart, I think this procedure offers considerable hope of overcoming the obstructing lesion.

THE SURGICAL TREATMENT OF URINARY INCONTINENCE IN THE FEMALE *

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Progress in the treatment of urinary incontinence of the female is essentially a story of surgical growth and development. Beginning in the eighteenth century with crude operations for the correction of vesicovaginal fistulas, the scope of this type of plastic surgery has so broadened that today most of the congenital and acquired bladder deformities are successfully treated by surgical means.

From a practical point of view, it would seem desirable to eliminate methods which appear to be basically unsound and encourage refinement and use of operations already proved.

Regardless of the explanations given by the originators of the various operations, investigation fails to indicate convincingly on just what the successful result depends. Continence following repair of the torn or relaxed internal bladder sphincter may simply be a matter of narrowing the urethral lumen. Success following plaiting of the pubovesicocervical muscle sheet (external sphincter) has been attributed to replacement of the sagging urethra and bladder. Likewise, relief following the use of muscle transplant operations is not necessarily dependent on continued function of the transplanted muscle, for it has been demonstrated that satisfactory results may follow the use of fascial strips without muscle.

In attempting to eliminate the less desirable operative procedures, this unsettled situation must be taken into consideration; consequently, for purposes of this paper, the selection is based primarily on functional improvement following the use of different operations.

Before the surgical treatment of urinary incontinence is discussed further, it is important to consider its etiology. In some patients the cause is quite obvious while in others diligent search may fail to place the responsibility. In general, the more common causes are thought to be congenital malformations of the lower urinary tract, acquired or congenital weakness of the sphincter muscles, and injury to the neuromuscular apparatus responsible for bladder control. Since successful surgical correction is fundamentally dependent on a thorough understanding of the cause, every effort should be made to uncover the responsible factors. To this end the history, particularly the time of onset, is important; but the patient's statements should not be depended on too much. Examination should include thorough study of the urinary tract as well as roentgen examination of the lower spine. The presence of spina bifida occulta or other malformation of the lower spine should always be viewed in the light of possible cause and effect relationship. Only by careful study may small fistulas, aberrant ureters and spinal cord lesions be discovered and appropriate treatment advised. It must also be remembered that there may be considerable overlapping of the ordinary enuresis of childhood and true urinary incontinence. Because of the many conditions presumably responsible for incontinence and in order to delimit the scope of this paper, it must be pointed out that the term incontinence as here used applies only to leakage from an intact urinary tract. Consequently, exstrophy, epispadias, aberrant ureters and acquired urinary fistulas will not be considered at this time except so far as patients so afflicted fail to become continent after operative correction of the primary lesion. With this understanding, the causes of urinary incontinence may be divided into three groups, thus:

Group 1.—*Incontinence Due to Congenital Absence or Weakness of the Control Mechanism.*—Incontinence persisting after the surgical correction of congenital bladder defects belongs in this group. With improvement in operations for the correction of bladder malformations, this group will tend to disappear, most surgeons realizing that control is just as important as restoration of the deformed viscus. Congenital absence or weakness of the sphincter muscles unaccompanied by other urinary tract disease is uncommon and accounts for but few cases.

Group 2.—*Incontinence Due to Local Trauma with Impairment of the Control Mechanism.*—In this group are included such common causes as parturitional injuries to the bladder sphincters, sagging of the urethra,[1] loss of muscle tone, and senile changes. All degrees of incontinence are noted. In older women slight incontinence at the time of straining, coughing or sneezing is so common as to be ignored by the patient. Indeed, unless they are specifically questioned concerning this symptom, the true state of affairs may pass unnoted. Local injury at the time of parturition is considered the most common single cause of this deplorable condition. The symptom may appear immediately after confinement or may come on gradually after a period of years. The fact that a multipara may go for years before there is any evidence of leakage suggests loss of muscle tone, with advance in years as a contributing factor.

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* From the Department of Obstetrics and Gynecology, State University of Iowa College of Medicine, Iowa City.

* Read before the Section on Urology at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 11, 1931.

[1] Bonney (On Diurnal Incontinence of Urine in Women, J. Obst. & Gynec. Brit. Emp. **30**: *358-365 [Autumn] 1923*) and Watson (Imperfect Urinary Control Following Childbirth and Its Surgical Treatment, Brit. M. J. **2**: *566-568 [Sept. 27] 1924*) feel that sagging of the anterior portion of the urethra is one of the most important factors responsible for urinary incontinence.

Group 3.—*Incontinence Due to Lesions of the Nervous Mechanism Involved in Bladder Control.*—The relationship between incontinence and certain cord lesions, whether injury, tumor, deformity or infection, has long been recognized. The hope for cure in these cases lies in correction of the cord condition, but when this is impossible, use of one of the operative procedures to be described may contribute greatly to the patient's comfort.

While the understanding of the nervous mechanism controlling the bladder sphincters is far from complete, the possibility of local nerve injury at the time of confinement sufficient to interfere with normal control deserves more than passing mention. The principal nerves to the bladder come from the second, third and fourth sacral nerves and from the sympathetics. After intermingling in the hypogastric plexus they follow the course of the ureters to reach the bladder. In addition, an automatic nerve control mechanism within the bladder itself is suggested by experimental work. Thus Rose and Deakin[2] point out that emptying of the bladder may be related intimately to the quantity of urine in the bladder, and, according to Kretschmer,[3] von Zeissle has pointed out that the dog bladder isolated from all nerve connections is still able to hold and expel urine. Consequently, it is not beyond the range of possibility that, with so much of the control mechanism centered in or near the bladder, trauma incident to confinement may in some instances be sufficient to cause local damage to the nervous control mechanism. Probably no amount of sphincter plaiting will correct the incontinence in these patients, and the fact that it does persist after repeated operations of this sort, all of which showed satisfactory surgical union, tends to corroborate the idea of local nerve injury. At any rate this possible relationship warrants further consideration by the scientifically inclined as well as the practically minded surgeon. It suggests the inadvisability of repeated plastic operations on the sphincter in the same individual, and tends to establish the rationale of muscle transplant when local nerve injury is suspected.

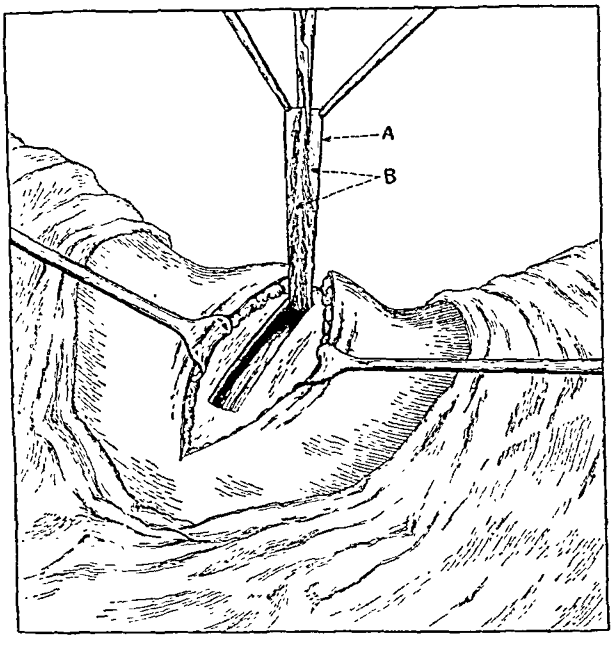

Fig. 1.—*A*, rectus fascia; *B*, pyramidalis muscles.

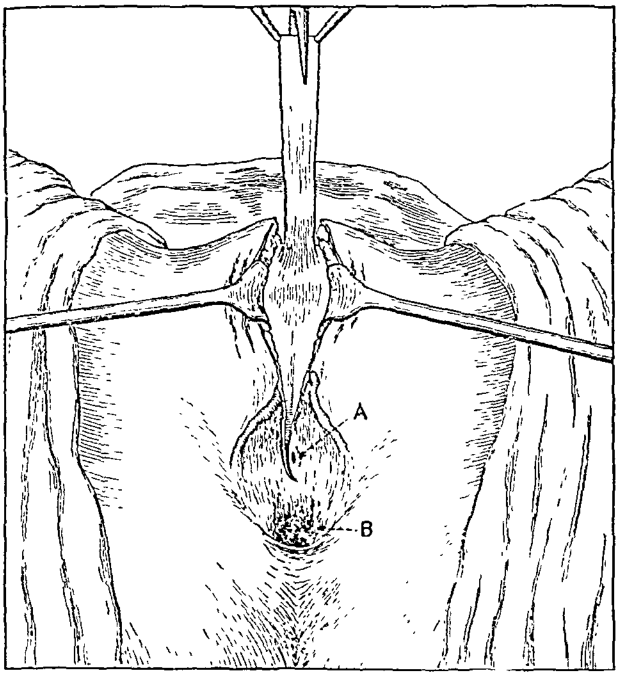

Fig. 2.—Partial splitting of muscle-fascia strip: *A*, urethra; *B*, vagina.

OPERATIVE PROCEDURES

Many operations suggested have not had sufficient trial to establish their worth. As a rule the more successful procedures are based either on sphincter tightening or on muscle transplantation. Other methods, though ingenious, are still in the experimental stage and their place in the treatment of incontinence remains to be determined. Judging from available records of successful results, the preferred methods may be classified as follows:

1. Plastic operations on the bladder sphincters:
   (*a*) Extravesical.
   (*b*) Intravesical.
2. Muscle transplant operations:
   (*a*) Rectus abdominis with or without fascia.
   (*b*) Pyramidalis muscle with rectus fascia.
   (*c*) Levator ani muscles.
   (*d*) Gracilis muscle.
   (*e*) Other muscles.

By the operations included in group 1, it is hoped to restore continence through repair, plaiting or tightening of the traumatized and relaxed bladder sphincters. Most operations of this type are of the extravesical type. They may consist in simple tightening of the internal sphincter at the bladder neck, as described by

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[2] Rose, D. K., and Deakin, Rogers: The Cystometric Diagnosis of Central Nervous System Syphilis: A New Appreciation of the Term "Neurogenic Bladder," Am. J. Syph. 13:371 (July) 1929.

[3] Von Zeissle, cited by Kretschmer, H. L.: The Anatomy and Physiology of the Bladder, chapter 12, in Lewis, Dean: Practice of Surgery, Hagerstown, Md., W. F. Prior Company 8:27.

Kelly and Dumm[4] in 1914, or in plaiting of both internal and external sphincters, as described by Edward L. Young[5] in 1922. When there is considerable relaxation of the pubovesicocervical muscle sheet, as seen in association with cystocele, a more extensive operation is necessary. Most of the procedures for this purpose are based on the principle of sphincter tightening plus restoration of bladder support. Sometimes the interposition of the fundus of the uterus (interposition operation) is advisable for the satisfactory elimination of the cystocele and the correction of the incontinence.

Some operators prefer the bladder approach for sphincter repair or tightening. For this purpose the technic described by H. H. Young,[6] Smith[7] and others has given satisfaction. My own preference is for the extravesical type, which has the advantage of permitting plaiting or tightening of both internal and external sphincters as well as replacement of the sagging bladder and urethra. The vaginal approach also eliminates the necessity for suprapubic drainage, the importance of which, in my opinion, has been greatly overemphasized. In the majority of instances, satisfactory surgical healing will occur with equal facility and without jeopardizing success if an appropriate sized indwelling urethral catheter is used during the first week following operation.

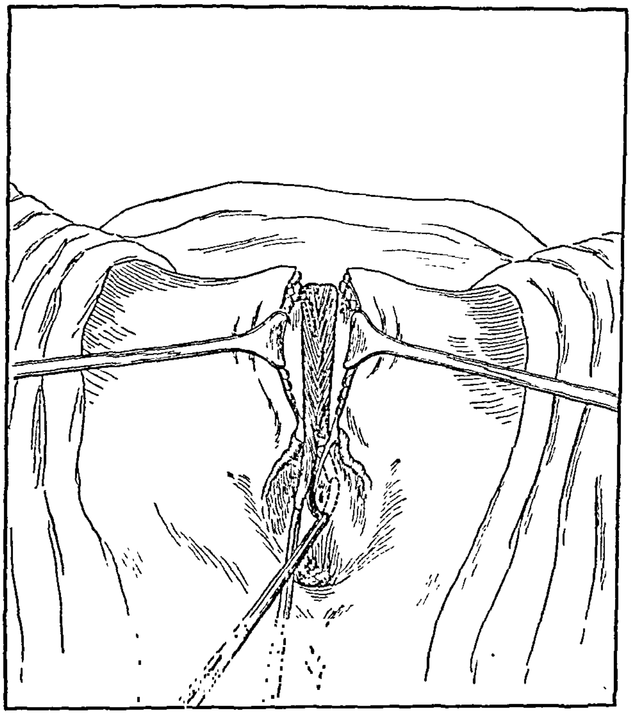

Fig. 3.—Muscle-fascia strips in place, split ends being around the urethra.

Muscle transplant operations have seemingly failed to receive the attention they justly deserve. This apparent neglect is the result of unfamiliarity with operations of this type and perhaps a growing interest in ureteral implantation into the bowel. Surprisingly few modern urologic and gynecologic textbooks even so much as mention operations of this character. It is no disparagement of the ureteral transplant operation to say that its use in the treatment of urinary incontinence in the female is seldom justified. Even with newer refinements, the margin of safety, both immediate and remote, is still too great to warrant its use except as a last resort.

The operation first described by Goebell[8] in 1910 and later improved and popularized by Stoeckel was one of the first muscle transplant operations to be used for the cure of urinary incontinence. It consists in bringing strips of rectus abdominis or the pyramidalis muscles with rectus fascia down behind the symphysis to encircle the urethra. The success of this and similar operations is generally attributed first to the fascia and secondarily to the muscle. Stoeckel[9] and Franz[9] consider persistent function of the transplanted muscle a matter of doubt and feel that the satisfactory results associated with its use are largely due to the support given the urethra. The question is still an open one, however, as evidenced by the fact that Rubsamen[9] proved persistent activity of the transplanted muscle four years after operation. Many modifications of the transplant operation are noted. Thus, Thompson[10] transplants the rectus muscle over the symphysis pubis and around the vulva with satisfactory results, and a somewhat similar use of the pyramidalis muscle and rectus fascia is described in this paper. The Goebell-Stoeckel operation and modifications thereof have been used extensively and successfully. Thus, Stoeckel[11] in 1921 reported nine cases with no loss of control years after the operation. Fragenheim[9] reported three cases of incontinence of central origin improved by this method of treatment.

Taussig[12] used the levator ani muscle. In future cases he proposes the use of the muscles from both sides. Similar use of this muscle is reported by Franz.[9]

Deming[13] successfully transplanted the gracilis muscle of the right leg.

CHOICE OF OPERATION

In patients with incontinence due to parturitional trauma (group 2), especially the milder forms indicated by partial bladder control, one of the less extensive sphincter plaiting operations should be tried. Generally, the results will be satisfactory; but in case of failure (nerve injury?) one of the several muscle transplant operations should be utilized. All too often the surgeon persists in the use of plastic procedures on the sphincter till the patient, firmly convinced that her condition is incurable, refuses further treatment. In the more extensive injuries associated with cystocele it is quite as important to tighten both internal and external bladder sphincters as it is to restore the bladder to its normal position, a fact frequently neglected and responsible for persistent incontinence after this type of plastic work.

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[4] Kelly, H. A., and Dumm, W. M.: Urinary Incontinence in Women Without Manifest Injury to the Bladder: A Report of Cases, Surg. Gynec. Obst. **18**: 444-450, 1914.

[5] Young, E. L.: Urinary Incontinence in the Female, J. A. M. A. **79**: 1753-1756 (Nov. 18) 1922.

[6] Young, H. H.: Operation for the Cure of Urinary Incontinence, Surg. Gynec. Obst. **28**: 84-88 (Jan.) 1919.

[7] Smith, M. K.: The Surgical Treatment of Urinary Incontinence in Women, Ann. Surg. **92**: 394-399 (Sept.) 1930.

[8] Goebell, Rudolf: Zur operativen Beseitigung der angeborenen Incontinentia vesicae, Ztschr. f. gynäk. Urol. **2**: 187-191, 1910.

[9] Cited in Latzko, W., and Schiffmann, Josef: Die Incontinentia urinae in Halban-Seitz: Biologie und Pathologie des Weibes **5**: 1138-1161, part 4, 1928.

[10] Thompson, R. A.: A Case of Epispadias Associated with Complete Incontinence Treated by Rectus Transplantation, Brit. J. Child. Dis. **20**: 146-151 (July-Sept.) 1923.

[11] Stoeckel, W. P.: The Treatment of Incontinence of Urine in Traumatic Injury of the Sphincter Muscle, Zentralbl. f. Gynäk. **45**: 17-32 (Jan. 8) 1921.

[12] Taussig, F. J.: A New Operation for Urinary Incontinence in Women by Transposing Levator Ani Muscles, Am. J. Obst. & Gynec. **77**: 881 (June) 1918.

[13] Deming, C. L.: Transplantation of Gracilis Muscle for Incontinence of Urine, J. A. M. A. **86**: 822-825 (March 20) 1926.

Incontinence persisting after the correction of epispadias is best treated by muscle transplant, since in these cases there often exists an associated congenital weakness or absence of sphincter fibers. Colpocleisis and ureteral transplantation are not justifiable except as a last resort. The former is obsolete, while the risk in the latter, both immediate and remote, is still too great to warrant its use without first attempting relief by other means. Some may object to this on the basis that the technic of ureteral transplantation is now sufficiently standardized to remove it from the group of hazardous procedures. Even if this were true the ultimate fate of individuals thus treated is so unsettled that the operation should be reserved for patients who cannot be cured by less extensive operations.

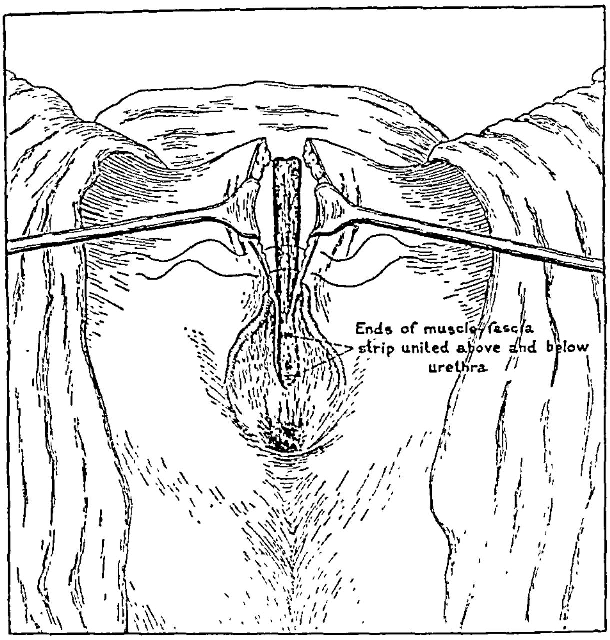

Fig. 4.—Muscle-fascia strip in place. Ends of muscle-fascia strip united above and below urethra.

In every case greatest care should be observed in determining the cause of incontinence and in selecting an appropriate operation for its correction. By so doing the necessity for repeated surgery on the same patient will be minimized and the chances for cure greatly enhanced.

While in the transplant operations the muscle of choice will depend somewhat on circumstances, it seems that use of the rectus abdominis, or pyramidalis, if present, is most logical, especially in the light of the many successes already reported. Apparently the chief objections to the Goebell-Stoeckel operation are bleeding and the excessive manipulation necessary in bringing the muscle-fascia strips down behind the symphysis between the pubis and the bladder. The modification of this procedure, as I have successfully carried it out, whereby the muscle-fascia strips are carried over the symphysis, would seem to minimize these potential drawbacks without jeopardizing the chances for success. The extensive incision and dissection necessary in transplanting the gracilis muscle and the possible interference with flexion and adduction of the thigh are tangible objections to this particular operation.

The effect of subsequent pregnancy and confinement on the permanence of control, once it has been established by surgical means, is still an open question. Mandelstamm[14] reported no return of the symptom following normal confinement in a woman treated by means of the Goebell-Stoeckel pyramidoplasty, and Calmann[15] noted continued control following forceps delivery in a patient similarly treated. Reports of this character, however, are rare; and until sufficient evidence is available to indicate the safety of delivery by the vagina, cesarean section should be advised.

REPORT OF CASE

Mary R., aged 5, was admitted to the gynecologic service of the University of Iowa, Oct. 23, 1930, because of complete urinary incontinence. According to available information the child was born with congenital "absence of the urethra." This was corrected by Dr. Frank A. King of Benton Harbor, Mich., in 1927, who also planned to remedy the persistent incontinence at a second operation. The patient failed to return, however, and apparently did not seek further advice until the time of her admission to this clinic.

A general physical examination revealed nothing unusual except some scarring over the symphysis pubis and around the infantile clitoris. There was moderate reddening and excoriation of the skin around the vulva due to irritation from continuous dribbling of urine. The urethra was intact but appeared toneless, suggesting the absence of sphincter fibers. A roentgenogram revealed a split pelvis and a small spina bifida occulta. The bladder capacity was 20 cc., and urinalysis was negative. Bladder contractility was good and there was no evidence of muscular atrophy. A small almond-sized calculus found in the vagina was readily removed with thumb forceps.

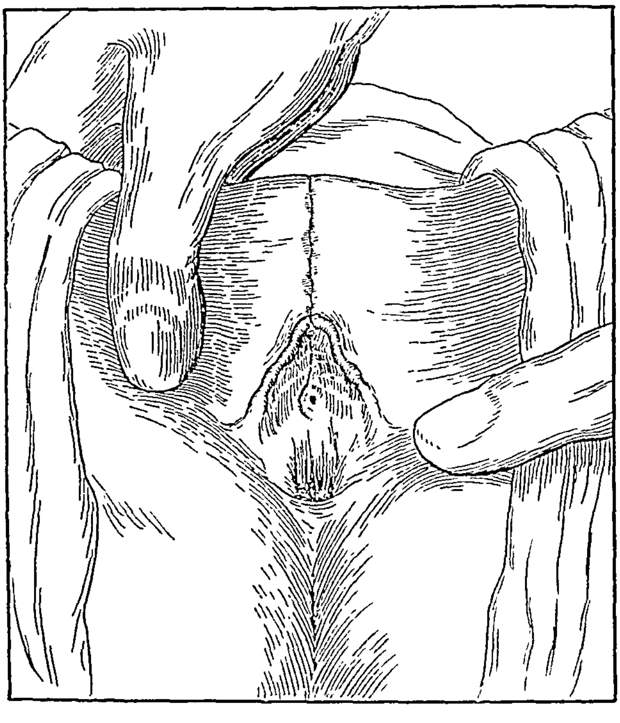

Fig. 5.—Healed incision, two weeks after operation.

After local treatment to the inflamed areas the patient was operated on, Nov. 19, 1930, as shown in the illustrations. A 10 F. catheter was left in the bladder for seven days; following its removal, she was catheterized at frequent intervals to prevent overdistention. By December 4, the patient was completely continent except for an occasional night wetting.

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[14] Mandelstamm, Alexander: Spontaneous Birth After Goebell-Stoeckel Urinary Incontinence Operation; Zentralbl. f. Gynäk. **51**: 1905-1916 (July 23) 1927.

[15] Calmann, A.: Zangengeburt nach Goebell-Stoeckel'schr Harninkontinenzoperation ohne Schädigung der Blasenfunktion, Zentralbl. f. Gynäk. **51**: 2943-2944 (Nov. 12, pt. 3) 1927.

By modifying the Goebell-Stoeckel operation, extensive dissection and packing for hemorrhage were avoided. Furthermore, in giving support to the urethra and anterior portion of the pubovesicocervical muscle sheet this factor in the etiology of incontinence was eliminated.

After discharge from the hospital the patient was able to attend school and play as any other healthy youngster.

In the early part of March, 1931, she was called back to the clinic. At that time she was completely continent during the waking hours but was generally damp once during the night. Because of an attack of follicular tonsillitis at this time it was necessary to admit her to the hospital until completely recovered. During her illness fluids were forced as part of the routine treatment for the throat condition, but no change in the patient's ability to control the urine was noted. Neither was there any increase in the nocturnal wetting. The average amount of each voiding was 60 cc.

At this time it was learned that the child was not living with her parents but was staying with relatives, who apparently made no effort to teach her to use the toilet during the night. With time and training it is not unreasonable to expect that she will become completely continent.

One might well query the cause of the night wetting in this patient. Perhaps the control noted during the waking hours is due to conscious effort and the night wetting to relaxation of the still incompletely trained muscles substituting for the natural sphincters.

University Hospital.

THE VALUE OF NEUROSURGERY IN CERTAIN VESICAL CONDITIONS *

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Three sets of nerves reach the bladder itself, its sphincter apparatus and the posterior urethra. Two of these sets belong to the autonomic system, a pathway derived from the thoracicolumbar outflow of the autonomic system, and a pathway derived from its sacral outflow. The former is usually termed sympathetic; the latter, parasympathetic. The remaining set (pudic nerves) belongs to the somatic system, and arises from sacral segments of the spinal cord.

Thoracicolumbar Outflow.—The origins of the fibers forming the thoracicolumbar outflow are shown in figure 1. They are finally concentrated in the presacral nerve, or superior hypogastric plexus, which has a superficial position under the peritoneum in front of the last lumbar vertebra. More than half of the total number of fibers in the presacral nerve are medullated preganglionic fibers, which are chiefly the downward continuations of mesially directed branches from the lumbar sympathetic ganglions; the nonmedullated fibers appear to be, at least in greater part, downward continuations of the branches from the upper abdominal visceral sympathetic ganglions. Below the promontory of the sacrum, the presacral nerve divides into the two hypogastric nerves, each of which joins the corresponding hypogastric ganglion. Relatively small bundles join the hypogastric ganglions from the second and third sacral ganglions of the lateral sympathetic chains.

With the cooperation of my colleagues of the Section on Urology of the Mayo Clinic, I have, during operations on human beings, stimulated the presacral nerve with a faradic current, while a cystoscopist noted the results. In a series of six cases, the following effects could be demonstrated:[1] (1) closure of the ureterovesical orifices; (2) contraction of the trigon; (3) contraction of the internal sphincter; (4) contraction of the musculature of the prostate gland; (5) contraction of the musculature of the ejaculatory ducts and seminal vesicles; (6) contraction of the blood vessels of the trigon, and (7) sensations of pain, felt in the region of the bladder. In addition, by studying the effect of the intravenous injection of epinephrine on the tension in a normally innervated bladder, I was able to show that sympathetic nerves exert an inhibitory action on the expulsive musculature of the bladder. These nerves have been aptly termed by Rose the "filling nerves" of the bladder.

The effect of division of the presacral nerve on the function of the bladder is to diminish the tonus of its internal sphincter and to increase its expulsive power. Because the internal sphincter later recovers some of its tonus, I am inclined to agree with Gaskell that the site of the synapse in this part of the nerve pathway is in the muscle itself. The synapse in the course of the inhibitory fibers is probably situated in the hypogastric ganglions.

Sacral Outflow.—The fibers that belong to the sacral outflow arise from the anterior primary divisions of the second, third and fourth sacral nerves. In animals, the homologous nerves are the pelvic nerves (Langley) or nervi erigentes (Eckhardt). These nerves join the hypogastric ganglions and probably pass through them without synaptic interruptions. The parasympathetic nerves contain fibers which: (1) initiate and increase the action of the expulsive musculature of the bladder; (2) probably directly inhibit the internal sphincter; (3) convey afferent impulses for the micturition reflex; (4) convey impulses subserving such sensation as the bladder possesses, and (5) furnish part of the sensory innervation of the posterior urethra. These nerves are therefore the "emptying nerves" of the bladder.

The ultimate nerves to the bladder consist of from eight to ten branches, which leave the anterior border of each hypogastric ganglion. These strands contain fibers derived from both thoracicolumbar and sacral outflows; the two sets are not separable after they have joined the hypogastric ganglions. The exposure and identification of the sacral outflow present so great anatomic difficulty that, in the rare cases in which one wishes to interrupt this pathway, it is best carried out by resection of the anterior branches of the hypogastric ganglions.

Pudic Nerves.—The pudic nerves are said to supply some sensory fibers to the posterior urethra; they also provide motor fibers for the external sphincter. The functional importance of the external sphincter varies with sex; in the male, it has an active part in controlling the urinary stream, and after certain operations about the neck of the bladder may be the only structure which secures continence. In the female, the external sphincter does not appear to have the same functional importance, and its motor nerves may be divided without fear of subsequent incontinence.

SURGICAL EXPOSURE OF THE THORACICOLUMBAR OUTFLOW

The thoracicolumbar fibers are most easily exposed at their confluence to form the presacral nerve. This lies in front of the aortic bifurcation and the body of the

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* From the Section on Neurologic Surgery, the Mayo Clinic.

* Read before the Section on Urology at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 11, 1931.

[1] Learmonth, J. R.: A Contribution to the Neurophysiology of the Urinary Bladder in Man, Brain 54: 147 (June) 1931.

fifth lumbar vertebra, immediately under the peritoneum, and is separated from the great vessels by loose areolar tissue. In structure it varies from a loose network of fibers to a solid cord. The steps in the exposure of the nerve have been described by Cotte[2] and others. After subumbilical laparotomy, the posterior parietal peritoneum is opened in the median line, over the front of the fifth lumbar vertebra; often the individual strands of the nerve may be seen. I have been in the habit of working from the left side to the right; the dissection is continued until the left common iliac vein, and the right common iliac artery, have been isolated from all nerve filaments passing downward and mesially. A segment of the nerve from 3 to 5 cm. in length is then removed, and the central and peripheral stumps are ligatured. If it is desirable to interrupt the sacral rami communicantes and the paravertebral sympathetic chains also, as suggested by Pieri[3] for cases in which relief of vesical pain is the primary object of the operation, these structures are reached by dissecting outward under the flaps of parietal peritoneum. When the operation has been completed, the posterior peritoneal incision is closed by a continuous suture of catgut.

INDICATIONS FOR SYMPATHECTOMY IN VESICAL DISEASE

Paralysis of the Bladder.—My original operation[4] for vesical paralysis was undertaken on the hypothesis that deficient emptying of the bladder, due to injury to the sacral autonomic outflow, might be corrected by interruption of the thoracicolumbar outflow, so that the viscus was freed from the inhibitory influence of this set of nerves. The results of eight such operations have strengthened this hypothesis to a theory. Three operations are so recent that only the immediate results can be stated; of these, one was immediately successful, one encouraging, and one apparently without benefit. The salient features of the remaining five cases are as follows:

Case 1.—A man, aged 36, had difficulty in emptying the bladder, with residual urine of about 250 cc. On cystoscopic examination, he was found to have a typical "cord bladder"; neurologic examination traced this condition to the residue of infective myelitis of twelve months' duration, located in the sacral segments of the spinal cord. Operation was undertaken on the hypothesis that as a result of injury to the sacral autonomic outflow there was a nervous overbalance in favor of the thoracicolumbar outflow, and that interruption of the latter pathway would facilitate the emptying of the bladder. After operation the patient was able to empty the bladder completely. A year later he returned to be reexamined; the cure was maintained, and the most residual urine found at any examination was 20 cc. Moreover, by intravenous urography it was found that the upper part of the urinary tract was not dilated.

Case 2.—A boy, aged 8 years, in 1925, at the age of 3 years, had an illness of sudden onset, characterized by weakness and ataxia of the legs and by urinary retention. After three months, power in the legs returned, but the weakness of the bladder persisted. For five years, he was catheterized three times a day; in 1926 residual urine for a week averaged 1,840 cc., and by 1930 it had increased to 2,640 cc. On examination, it was found that the bladder was large and atonic. The boy could not tell when the bladder was full, and he wet his bed at night. The largest amount of urine that was passed voluntarily was 60 cc. A neurologic cause for the urinary retention could not be detected at this time. After resection of the presacral nerve, he rapidly and completely recovered the power of emptying the bladder. Two weeks after operation he could pass as much as 250 cc. voluntarily. He no longer wet his bed, as he awakened when the bladder filled. A year after operation, his cure is maintained; he empties the bladder completely and is in excellent general health.

Case 3.—A youth, aged 20, had had trouble with urination for two years; apparently the difficulty was a sequel of an attack of scarlet fever. He had to strain to start the stream and had episodes characterized by chills and fever. At the urologic examination, a typical "cord bladder" was found, with 240 cc. residual urine. As a roentgenogram showed a notch in the arch of the first sacral vertebra, this region was first explored; evidence of compression of the cauda equina was not found. Five days later the presacral nerve was resected. A month after operation, there was 20 cc. residual urine, and the expulsive force of the bladder was improved.

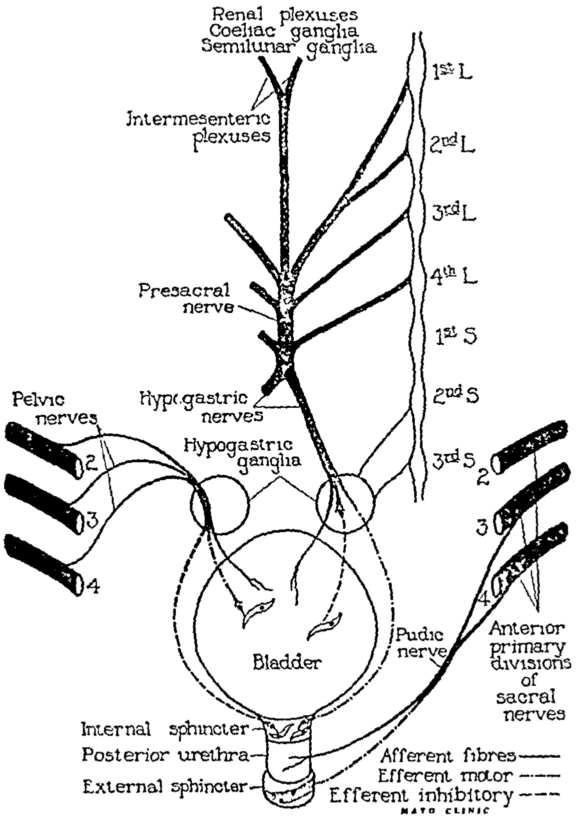

Fig. 1.—Anatomic diagram of nerves to the bladder.

Case 4.—A man, aged 28, had nocturnal enuresis until he was 23. For eighteen years he had frequency and occasional burning on micturition. For four years he had attacks of pain in the left loin, like those of renal colic. On urologic examination he was found to have a typical "cord bladder," with residual urine which varied in amount from 50 to 210 cc. The region of the cauda equina was first explored, and a firm fibrocartilaginous band at the level of the first sacral vertebra was dissected off the dural sac. This procedure afforded him little or no relief, and seven months later he returned for resection of the presacral nerve. Reexamination at this time showed that the amount of residual urine was about 120 cc. One month after operation the residual urine measured 20 cc., and the expulsive power of the bladder was improved.

Case 5.—An unmarried woman, aged 40, had had bilateral pyelectasis and ureterectasis for twenty-five years, as a result of incomplete emptying of the bladder. The process was probably of congenital origin. It declared itself in periodic attacks of fever, chills, and difficulty in urinating; during these attacks, a large amount of residual urine was present. On cystoscopic examination, in addition to the inevitable cystitis, the ureters were found to enter the dilated bladder in such an oblique fashion as to cause obstruction to the downflow of urine. Operation was undertaken in this case, in an endeavor to improve the expulsive force of the bladder. In this it has been successful, for Dr. D. K. Rose of St. Louis, to whose care the patient returned, has found that the capacity of the bladder has been diminished, and its expulsive power increased. Some additional procedure may be required to deal with the abnormal insertions of the ureters.

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[2] Cotte, G., and Dechaume, M.: Technique et indications opératoires des interventions sur le sympathique pelvien (sympathectomie periarterielle hypogastrique; section du nerf présacré) en gynécologie, J. de chir. **25**: 653-664 (June) 1925.

[3] Pieri, Gino: Énervation ou ramisection? Presse méd. **34**: 1141-1142 (Sept. 8) 1926.

[4] Learmonth, J. R., and Braasch, W. F.: Resection of the Presacral Nerve in the Treatment of Cord Bladder: Preliminary Report, Surg. Gynec. Obst. **51**: 494-499 (Oct.) 1930.

Thus two of the five patients remain cured after a year, and the remaining three have been benefited by the operations. The outlook for untreated cases of this type is so discouraging that less success than has been achieved would have justified the operations. Cases selected for operation must fulfil certain conditions. Thus, they must show evidence of injury to either the central or the peripheral part of the parasympathetic pathway, in the presence of an intact sympathetic pathway; the patient must be continent, and renal function must be satisfactory. All the cases described fulfil these conditions. In addition, I am anxious to test the effect of the operation in a case of the vesical paralysis which occasionally complicates removal of the rectum.

Vesical Pain

Age	Sex*	Nature and Duration of Condition	*Operation*	Time Since Operation, *Months*	*Result*
29	♀	Interstitial cystitis 6 years; capacity 250 cc.	Resection of presacral nerve	9	Pain relieved on one side only; frequency unaltered
40	♂	Interstitial cystitis 5 years; capacity 60 cc.	Resection of presacral nerve	8	No relief of pain or frequency
35	♀	Interstitial cystitis 2 years; capacity 90 cc.	Resection of presacral nerve	7	Some relief of pain and frequency (about 40 per cent)
49	♂	Interstitial cystitis 14 years; capacity 120 cc.	Resection of presacral nerve	7	Frequency and some urinary discomfort but none of the old excruciating pain; bladder can hold up to 250 cc.; general condition much improved
33	♀	Residue of tuberculous cystitis 5 years; capacity 200 cc.	Resection of presacral nerve	6	Marked relief of pain; only slight relief of frequency
57	♀	Inoperable carcinoma of bladder; 5 weeks	Resection of presacral nerve	3	Satisfactory relief of pain
32	♂	Painful posterior urethritis and trigonitis 18 years; capacity normal	Resection of presacral nerve	6	Complete relief of pain; slight diminution in frequency
29	♂	Interstitial cystitis 7 years; capacity 90 cc.	Resection of presacral nerve; division of sacral rami communicantes and lateral sympathetic chains	5	Relief of vesical pain; still has burning in urethra; frequency being reduced by overdistention
52	♂	Chronic posterior urethritis and cystitis after prostatectomy 2 years; capacity normal	Resection of presacral nerve; division of sacral rami communicantes and lateral sympathetic chains	3	Little if any relief of pain or frequency
39	♀	Interstitial cystitis 1½ years; capacity 280 cc.	Resection of presacral nerve; division of sacral rami communicantes and lateral sympathetic chains	1½	Pain relieved; frequency much less
58	♀	Interstitial cystitis 10 years; capacity 100 cc.	Resection of presacral nerve; division of sacral rami communicantes and lateral sympathetic chains	1	Pain relieved; frequency appreciably less

* In this column, ♂ denotes male; ♀, female.

Spasm of the Neck of the Bladder.—I have divided the presacral nerve in two cases, in which failure to empty the bladder seemed to be due either to hypertonus of the internal sphincter or to incoordination of the nervous mechanism which secures relaxation of this structure at the beginning of micturition. The operation seemed logical, because relaxation of the internal sphincter after sympathetic neurectomy had been observed repeatedly. In each case residual urine was present, although there was no demonstrable reduction in the expulsive power of the musculature of the bladder. I feel that the operation has been worth while in both cases.

The most gratifying result was obtained in the case of a man, aged 58, who for ten years had had increasing difficulty in starting the flow of urine. At first this could be accomplished by straining, as a result of which bilateral hernias developed. Finally he could urinate only after introducing a small quantity of hot water into the rectum. He himself was convinced that difficulty in relaxing the sphincter was the cause of his condition, and cystoscopic examination failed to disclose any organic obstruction at the neck of the bladder. Various local operations had been performed elsewhere, without affording him any relief. The result of the operation was immediate; even in bed he did not have any difficulty in urinating, and he felt that the "spasm" of which he complained had been relieved. In the second case, the patient had complicating factors in diverticula into which the ureters opened. The residual urine amounted to 150 cc. and could be passed only with much straining. After operation the amount of residual urine was reduced, but 50 cc. was still present. Cystoscopy showed that the internal sphincter had regained some tonus, whereas the trigon and the posterior urethra remained relaxed. Suprapubic exploration was performed, but it was thought advisable not to resect the diverticula, as this would have involved an extensive reconstruction with reimplantation of both ureters. During his convalescence from the second operation, the posterior part of the internal sphincter was divided with a Colling knife. When normal micturition was reestablished, it was found that the patient emptied the bladder completely. This combination of neurectomy and local operation seems desirable in cases of this type.

Vesical Pain.—For some time it has been known that the thoracicolumbar autonomic nerves which are distributed to the bladder contain afferent fibers which communicate sensations of overdistention to the spinal cord. In a study of the behavior of the bladder following gunshot wounds of the spinal cord, Head and Riddoch had pointed out that when the level of the injury was such that this pathway alone connected the bladder with intact segments of the spinal cord, the patient could appreciate distention of the bladder.[5] My own observations on the effect of handling or stimulating the presacral nerves of patients under spinal anesthesia confirm this; in particular, in one case the patient stated that handling the presacral nerve with forceps was attended by a "crushing pain in the bladder." The first to apply this physiologic fact to the treatment of vesical pain was Pieri; several similar reports have appeared in continental literature. In order to include all the possible paths by which fibers of the thoracicolumbar outflow conveying impulses of pain might reach the central nervous system, Pieri[6] in a subsequent paper advocated, in addition to section of the presacral nerve, bilateral sections of the rami communicantes passing from the sympathetic chains to the first, second and third sacral nerves, and bilateral division of the chains themselves at the level of the fifth lumbar vertebra. The anatomic features of this operation are shown diagrammatically in figure 2. I have performed sympathetic neurectomy in eleven cases of vesical pain in which urologic measures had failed to secure lasting relief. The essential details of these cases are shown in the accompanying table.

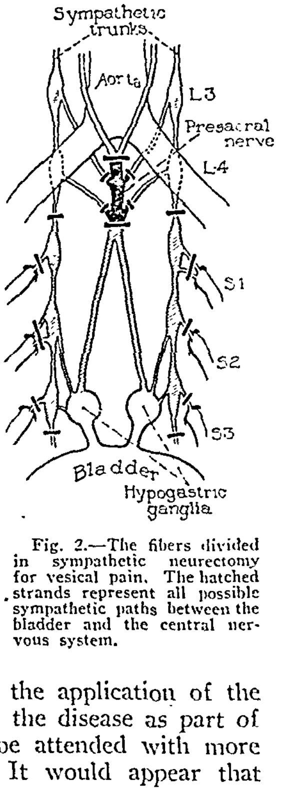

Fig. 2.—The fibers divided in sympathetic neurectomy for vesical pain. The hatched strands represent all possible sympathetic paths between the bladder and the central nervous system.

In six of these eleven cases, operation has been worth while. It seems to relieve the pain of spasmodic contraction of the bladder but has had little if any effect on urethral irritation. Frequency is not as a rule reduced, but after operation this symptom can be more effectively dealt with by overdistention of the bladder. As yet I have been unable to recognize the factors that make for success in some cases and failure in others. All the patients had been ill for long periods, and it is possible that the application of the operation at an earlier stage in the disease as part of the urologic treatment would be attended with more uniformly successful results. It would appear that when the operation is offered to patients with long standing disease, only about 50 per cent chance of relief can be given. Continental observers rate its efficacy higher, but my experience does not corroborate this optimism.

SUMMARY

A review of the nerve supply to the bladder is given.

The method of exposing the sympathetic nerves to the bladder is described.

Sympathetic neurectomy is indicated in cases of vesical paralysis, in which the lesion is situated in the parasympathetic pathway, and the sympathetic pathway is intact. The patient must be continent, and renal function satisfactory.

Sympathetic neurectomy, alone or combined with a local procedure, has proved efficacious in dealing with spasmodic conditions of the neck of the bladder.

Sympathetic neurectomy will relieve pain due to painful contractions of the bladder in about 50 per cent of cases; it does not directly relieve frequency.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. MILLER AND LEARMONTH

Dr. Alexander Randall, Philadelphia: Dr. Learmonth's presentation has many novel features. In 1912, Dr. William G. Spiller of the department of neurology of the University of Pennsylvania first conceived the idea of surgery to relieve pain. His idea was sectioning of the anterolateral columns of the spinal cord, and soon thereafter Dr. Charles H. Frazier did the first operation. In the subsequent years he has now performed this operation of chordotomy in over seventy cases. These have usually been performed for incurable malignant tumors, and it has been a brilliant surgical procedure. Done under local anesthesia, a delicate cutting of the sensory columns of the spinal cord is accomplished and at the same time there is a constant control by the testing of the anesthesia on the patient. Dr. Learmonth has gone further and included the control of the intractable conditions of the bladder as well as the pain from malignant tumors. It is impossible to say where the work will lead. The operation is one that necessitates the utmost dexterity. Any one who has seen it knows that its success depends on its completeness, and the completeness is one of delicate handling of small nerves. I wish to ask Dr. Learmonth what the rapidity of regeneration is. Sympathetic fibers can regenerate rapidly, and if one does such a neurectomy and then is faced with recurrence in a short time from regeneration one would question its value. That leads to a second question: How often will neurectomy be done as a treatment of symptoms and not as a cure of the cause? I fear that in many cases it will be done to relieve the effect and not be aimed immediately at the basic, fundamental pathologic process.

Dr. H. W. Plaggemeyer, Detroit: Dr. Learmonth's idea evidently is that, with a partial dysfunction of the parasympathetic or accelerator mechanism, removal of the sympathetic inhibitors enables the parasympathetics to function better or more nearly toward their normal. From previous experience in long-delayed recovery following certain cases of transverse myelitis in the army (without anything having been done), I am led to ask whether removal of the presacral sympathetic ganglion has permanent effect. We know from Lee's work on degeneration and regeneration that these sympathetic fibers often do not regenerate until after four or five months; in some cases, however, they regenerate in eight weeks. In this type of operation one must consider this, as these fibers do not have very far to go in order to end in the sympathetic ganglions in which they form synapses. I feel that we still have many more observations to make before we are sure of the total end-effect of the combined action of the hypogastric and of the pudic nerves. Although we have not tried it, it may be worth while, in necropsy material, to expose particularly the hypogastric nerves and stimulate them in the presence of the distended bladder soon after death. The bladder can function automatically after its nerves have been severed from the spinal cord. In cases in which the lesion is above the conus, the possibilities for automatism with reflexes taking place through the spinal cord are found. If the conus is destroyed, automatism even in such cases does take place and has been described by several authors. I should think with Dr. Learmonth that, in cases with complete transverse myelitis above the level of the conus and in which the vesical centers of the spinal cord are still in good connection with the bladder, if it is true that the hypogastric nerves are inhibitors their removal, partial or otherwise, might decrease the residual urine. If it is true that automatism can be established on a neurogenic basis in cases of complete transverse myelitis, which fact is accepted, why could not removal of the so-called inhibitors of the bladder enable the latter to function even better? Why does Dr. Learmonth consider complete transverse myelitis a contraindication? How long does it take for the residual urine to disappear following operation in cases of this classification? If long enough, may it not be true that the reeducation of the bladder may be responsible for some of the results obtained? If patients are operated on soon after injury to the spinal cord or to the parasympathetic nerves, the result may possibly be confused with what usually would have taken place without an operation. Dr. Learmonth has opened up a wide field of practical research.

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[5] Head, Henry; and Riddoch, George: The Automatic Bladder, Excessive Sweating and Some Other Reflex Conditions, in Gross Injuries of the Spinal Cord, Brain 40:188-263 (Nov.) 1917.

[6] Pieri, Gino: Contributi clinici alla chirurgia del sistema nervoso vegetativo: IV. La cura della cistite tubercolare, Arch. ital. di chir. 27:454-482, 1930.

Dr. R. W. Barnes, Los Angeles: Dr. Learmonth's paper has added to our knowledge of the treatment of the neurogenic bladder, but the method of treatment is not available to all of us. About a year ago I reported some results from the use of the sinusoidal galvanic current in treating these neurogenic bladders. It is known that some patients do not have residual urine but do have a high incontinence, and some have just the reverse. If one can obtain a balance of tone it will help these patients. In my service at the Los Angeles County Farm, where about 250 cases of bladder disturbances are under treatment, most of which are neurogenic, we have tried the sinusoidal or Morse wave current. In patients with residual urine and no incontinence, we use the active electrode on the suprapubic region to stimulate the bladder musculature, and for those with little or no residual urine we use the active electrode on the perineum, with the inactive electrode on the dorsal region. We have found that by balancing these two muscle forces in this way we can improve the status of these patients, reducing their residual urine some 75 per cent, decreasing the incontinence, and making them much more comfortable. It does not offer a method of cure, but it does help the patient and makes his life more livable.

Dr. W. F. Braasch, Rochester, Minn.: I have observed most of the patients whom Dr. Learmonth has operated on and can confirm what he said about the value of this work. Resection of the presacral nerve is particularly applicable to the group in which the lesion involves the terminal nerve supply rather than the central nervous system. I wish to refer briefly to the cystoscopic data observed in these cases subsequent to operation. These consist usually of diminution in sensation of the bladder mucosa, diminution in heat and cold sensation, dilatation of the blood vessels, and relaxation of the trigon. Subsequently the sensation may return to a greater or less extent, and the trabeculation which may have been previously present is usually found to be reduced or absent. As a rule, relaxation of the trigon and of the sphincter will persist. The infection in the bladder is often improved, apparently as a result of the increased blood supply and reduction in spasmodic contraction. We always employ the usual methods of local treatment of the bladder with interstitial cystitis before we resort to neurectomy, including overdistention, application of silver nitrate, and fulguration. In advising neurectomy for intractable cases we offer the patient only a 50 per cent probability of amelioration of symptoms and recovery. However, the relief from pain and dysuria is often so remarkable that the operation is indeed worthy of consideration in the treatment of these otherwise incurable patients.

Dr. Elmer Hess, Erie, Pa.: Renal sympathectomy is a symptomatic sort of procedure. My interest in it primarily has been in the control of pain, and in that way it does work. If there is regeneration of these nerves some time after the operation has been performed (and I am sure there is), I believe that one of the reasons why the patient does not continue to have pain is that the habit has been broken, as the result of the breaking of the nerve supply. There is a lot to be learned about sympathectomy. One should not rush blindly into an operation of this character, and I wish to emphasize the remarks of Dr. Braasch about trying something else first. I think that is exactly what one should do, but, after one has tried something else and the patients continue to be miserable, one is justified in using anything that will give symptomatic relief, even though one does not touch the pathologic condition.

Dr. H. Dawson Furniss, New York: I think the statement that these women are very miserable was not overemphasized. I have operated on thirty with the second type of incontinence that was mentioned and in 85 per cent have secured satisfactory results, with the other 15 per cent improved. The operation I have done most frequently was the first one Dr. Miller discussed (the Kelly procedure) in which one puckers the sphincter; in addition, I think one should pucker a good deal of the urethra itself, as it helps control. I have used a method very similar to the Kelly procedure, done suprapubically, when the typical Kelly method was not practical. One thing that must be remembered is that illustrations always make these things appear very much easier than they are. For tightening of the suprapubic sphincter, the patient must be well relaxed and must be in the exaggerated Trendelenburg position. The light must be good, for the sphincter is quite deep. The sphincter is not such a definite structure that one can locate it by touch. One must have a Pezzer catheter in place to locate the internal urethral orifice. In the much more relaxed cases I put in a second row of sutures. To place them, Young's boomerang needle holder is helpful. There may be some venous bleeding, but it is readily controlled by pressure. In some cases there is a prolapse, and in those I have added a stitch to hold the urethra up under the symphysis. I think it would be easier to encircle the urethra with the rectus fascia by passing it around the urethra suprapubically rather than infrapubically, and that it would be well to cross it in such a manner that fascia from the left side of the wound would go under the urethra from the right side and be joined above the urethra by fascia similarly passed from the right.

Dr. J. R. Learmonth, Rochester, Minn.: While it is undoubtedly true that sympathetic nerves regenerate, so long a segment of nerve has been removed in these operations that it seems to me out of the question that central fibers could reestablish communications with appropriate peripheral fibers. Moreover, the duration of the cures seems to be conclusive proof that such connections have not been reestablished. It is to be remembered that the portion of nerve removed contains both preganglionic and postganglionic fibers. In my opinion, the pudic nerve has less to do with the control of micturition than has been supposed. The intolerable itching of kraurosis vulvae may be relieved by bilateral section of the internal pudic nerve, without fear of subsequent incontinence. As has been emphasized by other speakers, the cooperation of Dr. Braasch and his colleagues has been very important. In some cases the operation is symptomatic, and it is then advised as an adjunct to urologic treatment. In certain cases of paralysis it seems to be curative, and the selection of suitable cases devolves on the urologist and the neurologist. I should be unwilling to carry out the operation in cases of transverse myelitis, in which, with good urologic care, satisfactory automatic emptying of the bladder develops in a large proportion of cases. Laparotomy does not seem to me justifiable in cases of this type.

The Disease Picture.—The reaction of the body to disease is directed to the restoration or approximation of the wholeness of health, by destruction of the invading parasite, through satisfactory readjustment to a permanent injury or by temporary accommodation to a physiological disturbance. Each individual attacks his problem, both consciously and unconsciously, in a different manner; and though the common problems themselves are fairly limited in number and more or less familiar to us, each patient's method of attack or of resistance, which we call the disease picture, is marvelously and infinitely varied. This matter of attack or of resistance depends on a multitude of factors; race, inheritance, age, environment, experience, education all come into play; and as these factors work to differentiate one person from another, so they tend to individualize disease in each single patient. The intricate combinations, in any man, of anatomical, physiological, immunological and psychological attributes, so aptly termed by Draper the "panels of personality," together form the fertile, indifferent or resistant soil on which the noxious germ is sown or injury done. The disease picture, the pathological state, depends on the manner in which these forces overcome this noxious agent, resist it, or sink before the fatal injury.—Longcope, W. T.: Methods and Medicine, *Bull. Johns Hopkins Hosp.* **50**:4 (Jan.) 1932.

Clinical Notes, Suggestions and New Instruments

ERB'S PALSY IN AN ADULT TREATED BY REATTACHMENT OF CAPSULE OF HEAD OF HUMERUS (METHOD OF KLEINBERG)

Maurice H. Herzmark, M.D., New York

History.—A. S., a man, aged 24, white, consulted me, March 17, 1930, because of a deformity of the left shoulder which made it impossible for him to bring his left hand to his mouth.

He stated that he was the youngest of eleven children and was born after a difficult and protracted labor. Shortly after birth it was found that his left arm was limp, and the attending physician strapped it to his side. Later the arm regained some power but became rotated inwardly. No attempt was made to correct the deformity until the age of 16 years. Several surgeons were consulted who advised operative correction. The parents refused consent to any operation, and the deformity continued unchecked. At the age of 21, after consultation with several orthopedic surgeons, the patient was advised that the deformity could be corrected only through an arthrodesis of the left shoulder joint. This he would not permit, and the matter rested until he came under my observation.

Examination.—The patient was well developed and in excellent condition. The left shoulder was somewhat lower than the right, and the muscles about it appeared much smaller than those on the right side. The line from the root of the neck to the point of the shoulder was convex on the left side, while on the right it was slightly concave. The pectoral muscles, deltoid and biceps were markedly underdeveloped on the left, while on the right these muscles appeared better developed than usual. The left upper limb was held habitually in marked inward rotation, with the elbow flexed at an angle of 135 degrees. Although the left shoulder appeared lower, the left elbow was on a higher level than the right. Posteriorly, it was seen that the left scapula was smaller than the right, and the head of the humerus was subluxated. External rotation was greatly restricted, the patient being unable to bring the point of the elbow against the side of the body. Flexion at the elbow was possible to normal range but extension was checked at about 140 degrees. Abduction of the left arm was purely scapular, the deltoid muscle taking very little part. The patient could not bring the left hand to his mouth; he could not touch the right shoulder; he could not bring his two palms together, except in a very awkward and ineffectual manner. Complete elevation of the left limb above the head was accomplished by a flipping motion. There was no demonstrable paralysis of any muscles, but the deltoid was extremely weak and lay posterior to rather than over the lateral aspect of the joint.

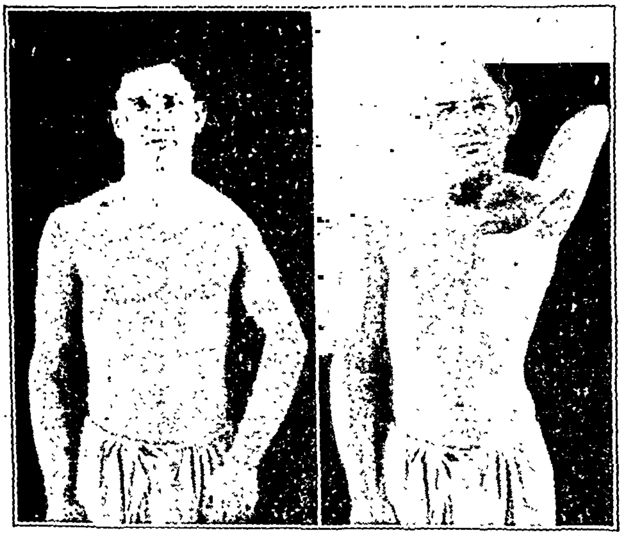

Fig. 1.—Before treatment. Deformity of shoulder: the patient is unable to reach mouth with left hand.

The diagnosis was Erb's palsy, with posterior dislocation of the head of the left humerus.

Treatment.—It was considered advisable to reduce the dislocation before attempting correction of the deformity. March 21, 1930, under a general anesthetic, the left upper extremity was manipulated so as to bring the head of the humerus into the glenoid fossa. This was accomplished by rotating the arm outwardly, at the same time extending it and forcing the head downward and forward. Reduction was accomplished without unusual effort, and, to insure maintenance of position, a plaster-of-paris shoulder spica was applied, holding the left arm rotated outwardly, extended, abducted to 90 degrees and the elbow flexed so that the palm of the hand faced the side of the body.

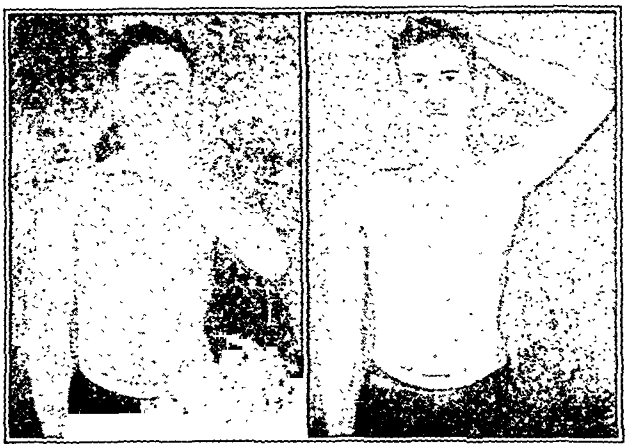

Fig. 2.—Five months after treatment. The patient appears less deformed. Motion about shoulder allows bringing of the left hand to mouth and top of head.

Two weeks later, April 4, the spica was removed. Examination of the shoulder showed that the head of the humerus was in position in the glenoid fossa. This position was maintained as long as the arm was extended and rotated outwardly, but as soon as flexion and inward rotation was permitted, subluxation resulted.

For the purpose of correcting the deformity, an open operation was done. The procedure followed was that of reattachment of the capsule around the head of the humerus, using the technic devised by Dr. Kleinberg.

An incision was made from the tip of the acromion process along the lateral margin of the arm nearly to the insertion of the deltoid muscle. The fibers of the muscle were split and retracted. The periosteum was incised in a linear direction along the lateral margin of the humerus from just below the surgical neck downward for about 2 inches, and at the lower level the incision was carried transversely. With a periosteal elevator, the perisoteum and capsule were lifted from the bone. The lesser tuberosity with part of the subscapularis muscle was stripped; the stripping continued medially around the bone. The greater tuberosity with its supraspinatus tendon was cut through and lifted from the bone. The stripping was continued until the bone was free. The humerus was then rotated outwardly as far as possible, and in this position the capsule was reattached, the outer lip overlapping the inner lip about three-fourths inch. The wound was closed in layers, the skin with black silk. A plaster-of-paris shoulder spica was applied, holding the left arm in outward rotation, extension, abduction to 90 degrees, the forearm flexed at right angles, and the palm facing the side of the body.

The patient walked about in the plaster spica, which was allowed to remain in position until May 12, when the upper part was cut away so as to permit inspection of the wound. The sutures were removed and healing had taken place by first intention. The patient was now taught how to remove this upper shell of plaster and exercise the deltoid and biceps muscles. Baking and massage were now begun on the part exposed by removing the plaster shell.

June 23, the plaster was entirely removed and an abduction splint was applied so as to lessen abduction.

Physical therapy and exercises were continued for a month, and the patient obtained employment as a garage mechanic. He continued to work and from time to time was treated with physical therapy.

Examination, September 28, showed great improvement in the deformity. The left shoulder appeared to be in a very satisfactory condition. The inward rotation was no longer present, and the patient could use his left arm quite satisfactorily. The deltoid and biceps muscles had improved markedly, and there was some development to be noted in the pectoral muscles. The patient could bring his hand to his mouth, touch the right shoulder, bring the left hand to the top of the head, behind the neck, and even touch the right ear. He was able to approximate his palms in an effective manner for carrying or working, and lifted a heavy chair by way of demonstration. The left arm could be extended and raised above the head in a normal manner without resorting to a flipping motion as formerly. The flexion contracture at the elbow was also slightly improved, although no treatment of this had been attempted. From a bar above the head, the patient was able to raise himself, with the palms facing toward the body, to a position in which the chin was brought to rest on the bar. This was repeated several times.

272 West Ninetieth Street.

Council on Physical Therapy

The Council on Physical Therapy of the American Medical Association has authorized publication of the following article.

H. A. Carter, Secretary.

ELECTROSURGERY

A BRIEF REVIEW OF ITS ADVENT AND SOME OF ITS USES

HOWARD A. KELLY, M.D.
AND
GRANT E. WARD, M.D.
BALTIMORE

Electrosurgery came on the surgical horizon about 1907 as an outcome of the epoch making experiments of d'Arsonval and Oudin. The present efficient form of electrosurgery in this country, and largely in the world, is due to William L. Clark of Philadelphia, who took it over in a crude state and brought it to the borders of perfection. Addenda have been largely due to technical developments by electrical specialists, responding to stated needs of surgeons.

De Keating Hart and Pozzi over twenty years ago used a long sparking current of high voltage and low amperage for the destruction of tumors, called fulguration. Edwin Beer [1] of New York took this up about 1908 and used it extensively in bladder tumors. The difficulty with this agent was a lack of penetration: Beer's work, however, was distinctly prophetic of all that has followed.

The demand for electrosurgery arose from imperfections in the established surgical technic, long accepted as inherent in operative methods and, therefore, hardly realized until the new agent and the acquired facility necessary to its skilful application appeared to remedy them.

The reproaches indicated have lain in the prolongation of operations due to the application of ligatures to stop hemorrhage; in the liability of conveying infection or of distributing it in the general course of many operations; in the fact that ligatures acting as foreign bodies may become foci of infection; in the deplorable manipulations of tissues; in the contamination of wounds and general messiness of handling malignant growths and chronic and subacute infections; in the limitations often imposed on our extirpative work by reason of the depth of the operation from the surface, particularly in the oral and nasal cavities, in neural surgery, and in rectal and sometimes in abdominal procedures; in the fact that any serious difficulty of ligation in sharp hemorrhage in a deep operation often precludes a satisfactory continuation to its completion; in the condition of tissues after recovery, which makes a desirable secondary operation objectionable; in shock arising from prolonged operation with attendant hemorrhage. Experience has shown that these objections are in a measure overcome by electrosurgery.

Electrosurgery as now used is the employment of a high frequency alternating electric current of about 1,000,000 to 2,000,000 or more oscillations per second for the destruction or excision of diseased tissues. The current voltage and amperage under perfect control ranges from a minute, almost invisible, spark up to a heavy flashing flame, causing a necrobiotic heat penetration to the depth of 1 cm. on all sides of the electrode. The current is applied by "active" electrodes of various shapes: needle, thin narrow blade, ball, curet, wire loop.

These currents are applied through a uniterminal or biterminal connection with the generating apparatus, affording either a desiccation or a dehydration of the tissues, an electrocoagulation, or, by molecular disintegration, a cleavage or cutting of tissues.

The cardinal virtues of electrosurgery lie in effective destruction in loco of tissues that it is desirable to eliminate. This manifestly includes all forms of malignancy. There is no handling of tissues because of the knife and fork type of operation, which is unequaled in cleanliness by the immediate complete sterilization of both bacterial and malignant infection.

Hemostasis is easily effected in severing vessels up to about 1 mm. in diameter either by the application of the coagulating electrode direct or by the intermediary of a well-pointed hemostatic clamp, isolating the vessel. Thus ligatures are avoided, and the risk of infection is lessened by reason of the reduction of the imported foreign material. The ability to check hemorrhage, keeping the fingers away from the wound, makes it possible to continue deep work in various parts of the body.

Another advantage is the extended use of local anesthesia, which reduces hospitalization by making a number of these patients ambulatory.

A notable achievement lies in the group of operations being undertaken, many of them until recently hardly possible, particularly extensive malignant growths of the jaw, oral cavity, antra, brain, breast, thyroid, and vulva, resulting in a great number of patients with open wounds which, being kept clean, heal rapidly without pain or toxemia and yield a soft, pliable scar. Tonsillectomies in patients presenting contraindications for ordinary surgical procedures, such as cardiac disease and advanced age, are now being performed electrosurgically by trained operators. The destruction of the tonsil is effected in several stages, by applying the current alternately first to one side and then to the other, at intervals of one or two weeks. Such patients are usually ambulatory. The pillars must be kept from adhering by scar tissue until all infection disappears, thus avoiding encapsulation of infectious material. The method is still considered to be applicable only in selected cases and by men especially trained both in electrotherapy and otolaryngology.

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[1] Beer, Edwin: Removal of Neoplasms of the Urinary Bladder, J. A. M. A. 54:1768 (May 28) 1910.

Those unfamiliar with the intensity of the high frequency currents and their depth of penetration may easily strike destruction into deep-seated structures adjacent to the disease areas. Especially is this true of blood vessels (a carotid, for example) leading to and from the part or traversing neighboring tissues. To prevent hemorrhage at the operation or subsequently when the coagulum sloughs away, a ligation of tributary vessels is often advisable. While muscles (the pectoral, for example) are being incised, the faradic effect may be sufficient to cause muscular jerkings lively enough to throw the electrode against a neighboring large vessel. Severance of nerves often causes the same muscular contraction in the muscles supplied, with dangerous possibilities.

Another pitfall is that of undertreatment, particularly in the hands of an amateur. The extreme limits of the disease must always be estimated in malignant conditions and the destruction and the extirpation carried well out into the normal zone. The electrosurgical aspirant should first acquire a good general surgical training, adding later to his technic the use of the high frequency electric currents. A mere novice has no more right to exploit this new adjuvant than has the first year medical student to prescribe digitalis.

Various forms of apparatus have been developed through the years to such an extent that at present the market is replete with many new instruments, some of them only fairly satisfactory. Research jointly by surgeon and physicist, together with the competitive spirit of a group of able manufacturers continually improving their products, has accomplished much in developing a number of admirable, perfect instruments. Two general types are available: The one, dating from the original experiments of d'Arsonval and others, employs a transformer, a series of condensers, spark gaps and an Oudin coil as the source of power; the other, beginning with the discoveries of de Forest, employs one or more triode vacuum tubes as the generating factor. Each surgeon will learn to choose for himself, after thorough trial, the type best adapted to his needs. The better machines furnish a current readily available by the easy manipulation of a comprehensible switchboard or the ready change of electrodes.

The perfect generator should produce a smooth current without faradic effect, varying from the finest desiccation spark to heavy coagulation without much flashing or uncontrollable flame. Efficient coagulation by a blunt or ball electrode brought near to the tissues, with the minimal visible sparking, is another criterion of a perfect current. There ought not to be any fusion of coagulated tissues to the electrode, but to date no material is available out of which electrodes can be made which will not stick to the tissues, pulling some away when removed and risking tearing a vessel. In addition, the cutting current should be regulable from one severing tissue with only 0.1 mm. of destruction on each side to one coagulating 1 or 2 mm. in depth. The fine cutting current permits primary union; the heavier cutting current used in excising an extensive ulcerative malignant growth leaves in situ a dry sterile coagulum, which prevents any local recurrence or the dissemination of cells spilled from the ulcer. In the latter class, the local defects are so great that primary union is not anticipated and the coagulum becomes a desideratum. All these features, characterizing the perfect machine with the minimum number of controls, should be available at the operating table through a proper foot switch or by sterile connections for the operator's immediate control, without calling for an extra assistant.

At present, electrosurgical cutting and coagulation are accomplished by separate electrodes, usually of different shape, either necessitating two connections with the machine or an interchange of electrodes in a common handle attached by a single wire to the apparatus. In the latter instance an extra assistant is needed to switch from cutting to coagulating current or vice versa. Two wires, used to carry the current, form an awkward addendum at an already complicated operating table. In operating rooms, where inflammable anesthetics are used, surgeons are urged to secure apparatus of the best construction and to keep it in good repair, because open or static electric sparks may cause serious explosions.[2] As time passes, it is hoped that these and other technical problems will be simplified.

1418 Eutaw Place—101 West Read Street.

Council on Pharmacy and Chemistry

REPORTS OF THE COUNCIL

The Council has authorized publication of the following reports.
W. A. Puckner, Secretary.

MYODINE, SUBIDIN AND SANGUIODIN NOT ACCEPTABLE FOR N. N. R.

On account of the exploitation of certain "water-soluble" tinctures of iodine, advertised to physicians to be less irritant than, and therefore superior to, the official preparations Compound Solution of Iodine (Lugol's Solution) and Tincture of Iodine, Torald Sollmann published a report of an investigation in which the properties of the official solutions were compared with those of the proprietary preparations (The Journal, Sept. 20, 1919, p. 899). It was found that the official preparations were actually somewhat less irritant to the skin than the secret or nonsecret "miscible tinctures"; that the more even spreading and more rapid coagulation of protein renders a simple alcoholic solution of iodine best for "disinfection" of the skin, and that the delayed protein precipitation by the U. S. P. tincture would probably render it somewhat superior for the disinfection of open wounds. The report concludes that "The secret and nonsecret 'water-soluble' tinctures do not appear to have any material advantages."

According to inquiries received by The Journal, there appears to be a recrudescence, or a continued vogue, of proprietary preparations advertised with claims similar to those made for the discredited "water-soluble" tinctures and having apparently similar composition.

Myodine, Subidin and Sanguiodin are stated to be products of the I-O-Dine Laboratories, Inc., Philadelphia, marketed by Eimer and Amend, New York, N. Y. They are claimed to be "proteinized" or "vegetized" iodine solutions, prepared by combining "crystal iodine . . . with seaweeds and vegetables which have an affinity for iodine, digested by a special process." Myodine is stated to contain ".43 to .44 free iodine and about .30 iodine in combination. 6 to 7% of alcohol is added to the finished product." In quantitative determinations on a market sample by the A. M. A. Chemical Laboratory, Myodine was found to contain 0.25 per cent of free iodine, or 58.1 per cent of the amount claimed. Subidin is stated to have ". . . about 2.7 of free iodine. Between 25 and 30% of alcohol is added."

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[2] Death from Explosion of Anesthetic Gases, editorial, J. A. M. A. 98: 530 (Feb. 13) 1932.

In quantitative determinations on a market sample by the A. M. A. Chemical Laboratory, Subidin was found to contain 1.82 per cent of free iodine, or but 67.4 per cent of the amount claimed. According to an advertising booklet sent out by the firm, Sanguiodin contains "Alcohol (by weight) 5.38. Free Iodine 0.44%. Total Iodine 0.77. Water by difference 93.41." Quantitative determinations on a market sample by the A. M. A. Chemical Laboratory showed Sanguiodin to contain 0.05 per cent of free iodine, or but 11.4 per cent of the amount claimed. From this it is apparent that the preparations are essentially "water-soluble" iodine preparations of varying strengths marketed with indefinite and incorrect statements of composition.

The more recent advertising for Myodine and Subidin recommends these products for use in the mouth, throat and nose; circulars for Sanguiodin state that the preparation is for "Internal and Intramuscular Administration wherever Iodine is Indicated." Older circulars are not so modest about naming specific conditions with strong assertions of the value of the products in these; those for Sanguiodin recite a host of diseases with enthusiastic recommendations for the value of the product. The late circulars for Myodine and Subidin assert that these products are superior to the pharmacopeial preparations as being not "toxic" or "caustic" and generally therapeutically superior. The circular for Myodine is obviously addressed to the public.

The Council declared Myodine, Subidin and Sanguiodin unacceptable for New and Nonofficial Remedies because they are unscientific modifications of an official article marketed with unwarranted claims and indefinite and incorrect statements of composition under proprietary, uninforming names.

VEGE-SEA AND ORO BRAND KELP SALT NOT ACCEPTABLE FOR N. N. R.

"Vege-Sea" is stated by the Oakland Food Products Co., Oakland, Calif., the distributors, to be dried and powdered kelp while "Oro Brand Kelp Salt" is stated to be a flavored mixture of this kelp with ordinary salt.

According to the advertising, "Vege-Sea" is "The Ocean's Gift to the land," which is offered with the claim: "Adding a little VEGE-SEA to the every-day diet will relieve and prevent many illnesses and disorders by supplying necessary elements for the body." Vege-Sea and Oro Brand Kelp Salt are recommended to be used to add mineral constituents to the diet as a sort of general prophylaxis and as a source of iodine for goiter prophylaxis. Additional increase of marine mineral salts could only be of value if there were insufficiency of these special constituents in the diet—a condition which is probably very exceptional but which, if it exists, can be better corrected by supplying the special salts that may be deficient. As concerns goiter prophylaxis, it appears inadvisable to rely on the indefinite amounts of iodine which may be introduced in the form of kelp. The advertising aims to create the misleading impression that ordinary iodine preparations fail to prevent goiter; thus, it is claimed: "Soluble iodine is not necessarily assimilable iodine. In this connection it has been noted that the connection between goiter and iodine deficiency in the diet has been known for the last century yet little has been accomplished by the feeding of iodides. On the contrary it appears that goiter is on the increase. This fact is attributable to the fact that we are eating more and more highly refined foods and drinking more and more surface water."

The marketing of dried kelp or of a mixture of kelp and salt does not present any originality, and hence there is no warrant for the sale of these preparations under coined names.

The Council finds "Vege-Sea" and "Oro Brand Kelp Salt" unacceptable for New and Nonofficial Remedies because they are marketed with claims that are unwarranted and misleading and because the recognition of proprietary names for these unoriginal preparations is not in the interest of rational therapy.

Colles' Fracture.—Most Colles' fractures accompanied by fractures of the ulnar styloid have sufficient (96 per cent) displacements of the lower radial fragment to warrant reduction in order to obtain the best possible anatomic realinement which is usually essential for the best end-results.—Carp, Louis: *Arch. Surg.* **24**:1 (Jan.) 1932.

Committee on Foods

The following products have been accepted by the Committee on Foods of the American Medical Association following any necessary corrections of the labels and advertising to conform to the Rules and Regulations. These products are approved for advertising in the publications of the American Medical Association, and for general promulgation to the public. They will be included in the Book of Accepted Foods to be published by the American Medical Association.

Raymond Hertwig, Secretary.

ALICE OF OLD VINCENNES TOMATO JUICE

Manufacturer.—Vincennes Packing Corporation, Vincennes, Ind.

Description.—Pasteurized tomato juice with added salt; retains in high degree the vitamin content of the raw juice.

Manufacture.—Selected varieties of tomatoes raised in southern Indiana under contract are washed in tanks and inspected on moving belts. Only ripe tomatoes grading as No. 1, U. S. grade, are chosen for the manufacture of this brand of tomato juice. The tomatoes pass between two studded bronze rolls operating in opposite directions, are flattened and punctured, and fall into an enclosed stainless steel hopper connected to the juice extractor. The hopper and extractor are filled with steam vapor to eliminate air. The extractor is a bronze tube with openings of 0.004 inch diameter and is equipped with an internal heliocoid revolving at 60 revolutions per minute. The heliocoid is so constructed that one revolution at the intake moves the tomatoes eleven inches, which distance per revolution is gradually reduced toward the outlet, where one revolution produces a three inch movement; nine inches of punctured tomatoes are gradually squeezed into a three inch space, which expresses the juice. The light pressing tends to prevent extraction of the juice from the core, which is bitter. The expressed juice flows into a pan, which is the only place it is exposed to the air; it flows immediately to a glass lined tank, where it is heated to 62 C. A small amount of salt is added, after which it flows directly to the filling machines and is filled into glass bottles or tins, which are heated to 100 C. for about fifteen minutes. Precautions are taken throughout the processing to prevent contact with air wherever possible in order to protect the vitamin content.

Analysis (submitted by manufacturer).—

	per cent
Moisture	93.2
Ash	0.9
Salt in ash	0.5
Fat (ether extract)	0.3
Protein (N × 6.25)	1.1
Reducing sugars as invert	3.6
Sucrose	0.0
Crude fiber	0.1
Carbohydrates other than crude fiber (by difference)	4.0
Titratable acidity as citric acid	0.4
Phosphoric acid as P_2O_5	0.03
Citric acid	0.3
Malic acid	0.2

Calories.—0.3 per gram; 9 per ounce.

Micro-Organisms.—Culture tests indicate sterility.

Vitamins.—Vitamin A: Vitamin A starvation symptoms in rats are cured by 0.2 cc. of juice daily. Assuming the daily curative dose as representing one unit of vitamin A, then one can (300 cc.) has a potency of 1,500 A units, which approximates the A potency of a teaspoonful of a good grade (400 unit) cod liver oil.

Vitamin B (complex): Normal growth is restored to vitamin B (complex) starved rats by 10 cc. of juice. One can (300 cc.) is equivalent to approximately 36 Gm. of yeast cake (three cakes).

Vitamin C: Vitamin C starvation symptoms in guinea-pigs are cured by 2.5 cc. of juice daily, which indicates that most of the vitamin C of the raw juice is retained.

Claims of Manufacturer.—This tomato juice is a good source of vitamins A and B and an excellent source of vitamin C. It is suitable for infant feeding and for general table use.

"220" BREAD (KORN'S)

Manufacturer.—H. Korn Baking Company, Davenport, Iowa.

Description.—A white bread made by the sponge dough method.

Manufacture.—The sponge dough ingredients, 65 per cent patent flour of Southwest wheat and 70 per cent patent flour of Northwest wheat, water, yeast, and a yeast food containing calcium sulphate, ammonium chloride, sodium chloride and potassium bromate, are mixed in a high speed mixer. The sponge dough is fermented for from four to five hours, after which are added flour, water, salt, dextrose, lard and powdered skim milk to make the completed dough, which is cut into pieces of desired weight. The pieces are fermented for a short time, molded into loaf form, panned, further fermented, baked for from thirty to thirty-five minutes, cooled, and wrapped in wax-paper.

The factory, equipment and storage rooms are kept in strictly sanitary condition.

Analysis (submitted by manufacturer).—

	per cent
Moisture (entire loaf)	35.2
Ash	1.4
Fat (direct ether extraction method)	1.2
Protein (N × 6.25)	9.4
Crude fiber	0.2
Carbohydrates other than crude fiber (by difference)	52.6

Calories.—2.59 per gram; 73.6 per ounce.

Claims of Manufacturer.—A bread of good quality.

BORDEN'S OREGON, PEARL, ST. CHARLES, MARICOPA AND SILVER COW BRANDS EVAPORATED MILK

Manufacturer.—The Borden Company, New York.

Description.—Canned, unsweetened, sterilized, evaporated milk.

Manufacture.—Whole milk from healthy cows and produced under carefully supervised, sanitary conditions is used. All milk deliveries are tested for odor, flavor and sediment, and for acidity when necessary; a direct microscopic examination or the methylene blue "reductase test" is applied also.

Accepted milk is heated to 95-100 C., drawn into a "vacuum pan" and concentrated at 50-57 C. until about 60 per cent of the water is removed. The concentrated milk is homogenized by being forced under high pressure through small apertures, which disperses the fat into fine globules and prevents its separation during storage. The homogenized milk is cooled and tested to assure its conformity to the federal and state government standards for evaporated milk and is then automatically canned. The sealed cans are processed under steam pressure at 112-118 C. for from twenty to thirty minutes and chilled immediately thereafter. The product is examined after ten days' storage.

Analysis (submitted by manufacturer).—

	per cent
Total solids	26.0
Moisture	74.0
Ash	1.6
Fat	7.9
Protein (N × 6.38)	6.9
Lactose (by difference)	9.6

Calories.—1.4 per gram; 40 per ounce.

Claims of Manufacturer.—These brands of evaporated milk are suitable for general baking, cooking and table uses and in infant feeding. The mixture of equal parts of the evaporated milk and water is not below the legal standard for whole milk. The curds formed in the stomach are smaller, softer and more readily digestible than those from raw or pasteurized milk.

BORDEN'S PURE ORANGE JUICE

(Preserved by Freezing)

Manufacturer.—Borden's Farm Products Company, Inc., New York.

Description.—An unsweetened, uncolored frozen orange juice packed in hermetically sealed half pint paper containers.

Manufacture.—Florida tree-ripened oranges conforming to state sugar-acid ratio regulations are used immediately for the preparation of the juice or are stored in refrigerated rooms. The oranges are inspected, washed in a solution of calcium hypochlorite, mechanically scrubbed and sprayed with chlorine water, again inspected, conveyed to the inspection room, sprayed with chlorine water and conveyed to the extracting machines. The oranges are mechanically halved and each half is placed in a cup-shaped device, which descends on a knob-shaped head, which expresses the juice by displacement. The peel is so supported that practically no peel oil is expressed with the juice.

The expressed juice is collected, strained free of seeds and much of the pulp, further cooled in glass-lined tanks, and pumped through a tubular brine cooler which delivers the juice at approximately 1 C. The cooled juice is subjected to a "vacuum" (2 inches mercury pressure), then saturated with carbon dioxide gas and subjected to a second "vacuum" treatment. The first vacuum treatment removes much of the dissolved oxygen. The carbon dioxide "wash" removes the remaining oxygen and the second "vacuum" removes the carbon dioxide.

The air-free juice is conveyed to a glass-lined tank in which an atmosphere of carbon dioxide is maintained; the juice gravitates to seal-cone filler bowls also containing an atmosphere of carbon dioxide. Half pint seal-cones are filled with orange juice and for a few seconds only before the cones are sealed is the juice exposed to the air. Just previous to the sealing of the container, a puff of carbon dioxide is introduced to displace the air above the juice. The sealed containers suspended on an endless chain are conveyed through a freezing tunnel of calcium chloride brine maintained at —23 C. The frozen cone of orange juice is removed, packed in cartons, sealed, and stored at —17 C.

The extracting and filling rooms are closed and ventilated with filtered air. The frozen orange juice is shipped in refrigerated cars maintained at —6 C.

Analysis (submitted by manufacturer).—

	per cent
Moisture	89.5
Total solids	10.5
Ash	0.5
Fat	0.1
Protein (N × 6.25)	0.5
Crude fiber	0.02
Reducing sugar (as invert)	3.7
Sucrose (by copper reduction)	4.7
Total carbohydrates (by difference)	8.7
Titratable acidity as citric acid	0.9
Sugar-acid ratio	13.2: 1

Calories.—0.4 per gram; 11 per ounce.

Vitamins.—Biologic tests indicate that the vitamin C potency of this frozen orange juice is not demonstrably less than that of fresh orange juice.

Claims of Manufacturer.—A frozen orange juice nutritionally equivalent to fresh orange juice, packed in paper cartons for daily delivery to the final consumer. This frozen orange juice is suitable for all the uses of fresh orange juice.

WOLF'S BREAD

Manufacturer.—William Wolf's Bakery, Inc., Baton Rouge, La.

Description.—A white bread made by the sponge dough method.

Manufacture.—The sponge dough ingredients, 65 per cent patent flour of Southwest wheat, water, yeast and a yeast food containing calcium sulphate, ammonium chloride, sodium chloride and potassium bromate, are mixed in a high speed mixer. The sponge dough is fermented for from four to five hours, after which are added flour, water, salt, sucrose, lard, and sweetened condensed skim milk to make the completed dough, which is cut into pieces of desired weight. The pieces are fermented for a short time, molded into loaf form, panned, further fermented, baked for from thirty to thirty-five minutes, cooled, and wrapped in wax-papper.

The factory, equipment and storage rooms are kept in strictly sanitary condition.

Analysis (submitted by manufacturer).—

	per cent
Moisture (entire loaf)	34.0
Ash	1.0
Fat (direct ether extraction method)	0.9
Protein (N × 6.25)	9.3
Crude fiber	0.2
Carbohydrates other than crude fiber (by difference)	54.6

Calories.—2.6 per gram; 74 per ounce.

Claims of Manufacturer.—A bread of good quality.

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SATURDAY, FEBRUARY 20, 1932

THE SUPRARENAL CORTEX AND BODY TEMPERATURE

One of the features of investigation in physiology within the past two years has been the extensive study of the cortex of the suprarenal gland and its secretion. Recent investigations of the suprarenal structures have changed the emphasis that was placed only a few years ago on the respective functions of the different parts of the indispensable organ. The discovery of epinephrine in the medullary portion directed marked attention to the latter as a tissue of dominating significance in the body. It would be unfair to imply that the secretion of epinephrine is not of large physiologic moment. Many of the critical adjustments in the body, particularly in emergencies, are facilitated by this aspect of suprarenal response. Nevertheless, when considered in terms of absolute indispensability for life, the cortex of the suprarenal now must take first rank. Without the medulla, existence may still be assured; not so without the cortex. Loss of the latter is fatal. For this reason, replacement therapy with the recently described cortical extracts has quickly achieved prominence in clinical as well as in purely experimental fields. The studies out of which this enthusiasm has been developed have repeatedly been referred to in The Journal.[1] A common observation is the difficulty of regulating the body temperature of these animals; when they succumb soon after the operation there is a marked fall in body temperature and even surviving individuals in a warm room tend to have a subnormal temperature. Epinephrine is a recognized calorigenic agent and it is reasonable to expect that the loss of the main source of this hormone through suprarenalectomy would result in difficulty of maintenance of temperature. Indeed, there is evidence of an increased production of epinephrine in the normal animal after exposure to cold. However, a recent report from Hartman's[2] laboratory at the University of Buffalo describes experiments which indicate strongly that it is the lack of cortical tissue rather than that in the medulla of the suprarenal which is responsible for the failure to maintain a uniform body temperature after total suprarenalectomy. Apparently the processes of defense against cold are weakened.

Young albino rats were employed for these studies. After removal of the suprarenals one group was given subcutaneous injections of "cortin," the extract of the suprarenal cortex, and a second group isotonic sodium chloride solution. These together with a third group of intact normal animals were carefully observed for changes in body temperature at 27 C. There was little difference between the rats at this temperature. All the animals were then exposed to cold for three hours. At the end of this time the experimental group which had been treated with cortical extract had decreased 2 degrees in body temperature, whereas the similar group with saline solution only had lost approximately 10 degrees. The temperature of the normal animals changed little, if any, under this treatment. The normal rats became active and remained so during the exposure to cold; the cortin treated group was active during the early part of the cold period, but the untreated animals became quiet and lethargic. A similar experiment in which epinephrine was administered to one group of rats demonstrated the failure of this substance to enable the animals to maintain body temperature when exposed to cold.

The lack of adjustment to surrounding temperatures after removal of the suprarenals may be due to a decreased heat production or to an exaggerated loss of heat. Hartman and his co-workers determined the heat production in two groups of rats before and after suprarenalectomy and showed that one result of the operation was a distinctly lowered metabolic rate. However, when cortin was given following the removal of the glands, there was little change in heat production until sodium chloride solution replaced the cortical extract, when the energy metabolism fell. The effect of exposure to cold on the heat production was then studied. In normal individuals the metabolic rate early in the cold period was increased 54 per cent, whereas in the suprarenalectomized animals without cortin the increase was only 17 per cent. It thus appears that a large part of the difficulty of maintaining body temperature in the absence of the cortical hormone when exposed to cold is due to the failure to produce the added heat which is apparently a normal response in the intact animal.

These studies are particularly significant because they provide a promising method of assay for cortical hormone preparations, a lack of which has retarded progress in this field. Once the potency can be determined and expressed with reasonable accuracy, the way will be opened for further investigation of a quantitative nature. Furthermore, it appears possible to assume with greater assurance that the hormones of the medulla and the cortex are separate entities. And once again the biochemist has paved the way to further study of function by devising a method for the preparation of a potent tissue extract possessing a reasonable degree of specificity.

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[1] The Hormone of the Suprarenal Cortex, editorial, J. A. M. A. **91:** 1376 (Nov. 3) 1928; The Indispensable Suprarenal Cortex, ibid. **94:** 1242 (April 19) 1930; Suprarenal Function, ibid. **95:** 1506 (Nov. 15) 1930; The Hormone of the Adrenal Cortex, ibid. **96:** 273 (Jan. 24) 1931.

[2] Hartman, F. A.; Brownell, Katharine A., and Crosby, A. A.: The Relation of Cortin to the Maintenance of Body Temperature, Am. J. Physiol. **98:** 674 (Nov.) 1931.

WATER AND HEALTH

A competent writer[1] on diet in disease has recently ventured to express the conviction that "the dietetic error that has killed more patients than any other is the neglect of administering enough water." He adds that in acute disease a highly colored urine is a reproach to the physician and the nurse; a dehydrated skin and tongue are danger signals. Few persons who deal with the functions of the living body, whether in health or in disease, realize that water constitutes more than 70 per cent of protoplasm, the structural basis of organic life. In health, water is not merely incidental in this connection—merely present as ballast or a reserve in the way in which fat may accumulate in the body. Water constitutes the medium in which the chemical changes of metabolism occur.[2] As water is continually lost to the body through various paths, by way of the kidneys, bowels, lungs and skin, it is obvious that the output must be adequately replaced if a healthy "balance" is to be maintained. This means that the intelligent practitioner should have some conception of the magnitude of the factors involved in the daily exchange.

The relative output by the various channels differs widely in different persons and in the same person under unlike conditions. An undue intake of fluid, for example, may be followed by a compensatory output. Augmented heat production in the body, as the result of exercise or perchance of fever, calls for water to facilitate the dissipation of the heat so that the normal temperature of the body will be conserved. The insensible perspiration of healthy adult persons during periods of quiet in an ordinary atmospheric environment is not less than an ounce (30 Gm.) during an hour; this means more than 700 cc. a day eliminated in ways that are not directly recognized. According to Flack and Hill, as much as 10 liters of water may be evaporated during a ride in the sun in the southern California desert. The variations in urinary output are familiar. The average sized man is transporting nearly a hundred pounds of water in his body, which consists of this substance to the extent of about two thirds of his weight.

How are the recurrent losses already referred to made good from time to time? Atwater and Benedict found variations in consumption of water ranging from an average of 2,290 cc. for persons in repose to 3,700 cc. for those at moderate work. In addition to this, the transformation of foodstuffs in metabolism leads to the production of considerable water from the oxidation of hydrogen. Sugar produces half its weight of water. These are endogenous sources. What is not generally recognized, however, is the large contribution of water made by almost all the foods that we eat. Few of them yield less than half of their weight as water; most of them considerably more. More than nine tenths of many fruits and vegetables consist of water. In an ordinary diet, as much as a quart of water a day may be taken in the form of so-called solid foods. A person in repose will take into his body a total of about 5 quarts of water every day, 2 quarts in the form of drink and 3 quarts in the form of foods. To many it is thus a surprising fact that when we eat food we almost invariably are unwittingly consuming water. Consequently, Du Bois[1] has pointed out that when for any reason solid foods are cut off in disease it is necessary to supply a proportional increase in the liquid foods in order to bring the water intake up to the level of that of an ordinary person in health. In acute disease, a still further increase in water intake should be made in order to compensate for the excessive loss through the skin and lungs.

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[1] Du Bois, E. F.: Diet in Disease, Bull. New York Acad. Med. 7: 502 (July) 1931.

[2] A discussion of these and related items is given by Rowntree, L. G.: The Water Balance of the Body, Physiol. Rev. 2: 116 (Jan.) 1922.

DERMAL ABSORPTION OF SALICYLATES

Salicyl esters such as methyl salicylate (oil of wintergreen) are commonly prescribed as constituents of ointments, liniments and local applications, on the assumption that they possess a greater skin penetration, owing to their lipoid solubility, than do other salicylates. The amount of salicyl absorbed under these conditions would appear nevertheless to be too small for definite systemic effects. More important than the systemic actions from local applications of such products is the information they may yield regarding dermal function. The effects on the skin as determined by the properties of the constituents and of the vehicles of the mixtures merit attention.

As a group of relatively simple chemical substances, the salicyl compounds offer a good opportunity for testing the comparative importance of lipoid and water solubility, and of the chemical reaction (basicity and acidity) in dermal absorption. Lipoid solubility has generally claimed a larger share of importance for dermal penetration and absorption of substances than other properties, owing to the fatty nature of the skin as a membrane. However, the recent observations of Kionka[1] of the Jena Pharmacologic Institute on the dermal absorption of different salicyl compounds indicate that lipoid solubility may not be as important as some other factors. Clinically, the reactions of the skin are capricious.

Using the shaved skin of rabbits, Kionka determined the absorption of sodium salicylate, salicylic acid, acetylsalicylic acid, and the salicyl esters and certain of these products in the presence of camphor, capsicum and other irritants. The skin areas were 120 square centimeters, to which 5 Gm. of an ointment containing the salicylate were gently applied with the fingers for exactly two minutes. The dermal absorption was indicated by the appearance of salicyl in the urine, and the efficiency of penetration by the smallest amount of the preparation, when applied to the skin, that would give a positive test for salicyl in the urine. Salicylic acid (lipoid soluble) and sodium salicylate (water soluble) were absorbed with about equal readiness, contrary to current suppositions, which would ascribe little or no penetration to water soluble agents. Acetylsalicylic acid (lipoid soluble and rather acid) was the most readily absorbed, that is, once again as fast as sodium salicylate, and faster than that when compared with salicylic acid. The lipoid soluble methyl, salicyl and bornyl esters and salicylamide, however, were only about one third or one fifth as absorbable as acetylsalicylic acid, and about one half as compared with sodium salicylate and salicylic acid. These were the results obtained with the salicyl compounds in comparatively indifferent bases, such as a mixture of petrolatum and olive oil or hydrous wool fat.

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[1] Kionka, H.: Klin. Wchnschr. 10: 1570 (Aug. 22) 1931.

The absorption of acetylsalicylic acid, sodium salicylate and salicylic acid was materially increased (about 30 per cent) when applied in the same vehicles containing 1 per cent of sodium carbonate, 0.27 per cent of extract of capsicum, or 2 per cent of camphor. The absorption of the ester methyl salicylate, under these conditions, was not enhanced. Camphor was rather efficient for improving the absorption of salicyl salicylate, which was increased 70 per cent. The increased absorption from the carbonate ointment was attributed to the skin-softening effects of the increased alkalinity, which probably was responsible for the absorbability of the water soluble sodium salicylate. Absorption was not facilitated by the addition of ammonia liniment (also alkaline) to the ointment, but here the soap formation may have acted as a colloid protective barrier to absorption. The irritants camphor and capsicum were superior to the sodium carbonate, in promoting absorption; their efficiency was due to hyperemia.

Moderate degrees of chemical reaction, i. e., basicity and acidity, possessed by substances, appear to be more important than lipoid solubility for penetration of the skin. Alkalinity, which softens the skin, and acidity, which apparently hardens it, are more important than simple solution in the fatty secretion of the skin. Dermal penetration and absorption are as much a function of changes in skin tissues as solubility in its fatty excrescence. The latter undoubtedly assists in bringing lipoid soluble agents into intimate contact with the skin and its circulation, but, without some structural and local circulatory changes in the skin tissue proper, simple contact with capillaries is insufficient for satisfactory penetration.

Current Comment

THE HEART AS AN ELECTRICAL GENERATOR

The power of the human heart as a pump is marvelous. If the output of the hearts of the inhabitants of the United States were combined, the total energy would approximate 70,000 horse power, delivering each day nearly the equivalent of the flow of the Niagara River. The output of the human heart as an electrical generator is, however, exceedingly small. Bush and Reid [1] say that if the maximum of the mean electrical power of the heart should be applied for lighting purposes it would be capable of giving only a one second illumination of a small flashlight bulb once in a thousand years. The accurate measurement of the variations of this small amount of electrical energy became possible in 1903 when Einthoven introduced the string galvanometer. Since then the electrocardiograph has been an instrument prominent in cardiac research and valuable in the diagnosis and prognosis of heart disease. The string galvanometer, however, was found to have serious limitations, so the measurement of minute electrical magnitudes has advanced since Einthoven's work. The introduction of the thermionic tube has revolutionized the technic of fine electrical measurement. As an oscillator, the thermionic tube can repeat a predetermined performance a hundred million times in a second. To operate a tube recently introduced, the input current necessary in comparison with the full ampere necessary to operate a moderate size incandescent lamp is small, so small that if the single ampere in the lamp should be represented by all the women of this country talking in unison at the rate of 150 words a minute, the grid current of this tube would be represented by a lone mountaineer who speaks one monosyllable in thirty years. While electrocardiographs using thermionic amplifiers in conjunction with oscillographs have been designed, they have been used chiefly to duplicate the results given by the string galvanometer. Now the Massachusetts Institute of Technology, in cooperation with the Evans Memorial Hospital, has produced an instrument which, although as yet only a research tool, has accomplished new things. It has brought out detail that was lost in the older records; it has produced an enlarged record with a relatively fine line; and by requiring a negligible current for its operation, it has avoided errors due to the flow of current through the variable impediment of the skin. The new instrument gives the sensation that one can study under the high power of the microscope, as it were, what formerly could be viewed only under the low power. Time will tell what new information may be obtained with this improvement after many patients have been examined and many clinical and postmortem reports have been correlated. The design of the clinical electrocardiograph will probably change ultimately in the direction of the new instrument. The result should be a further disclosure of knowledge of the normal and the diseased heart.

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[1] Bush, V., and Reid, W. D.: The Human Power Plant, Technology Review 34: 159 (Jan.) 1932.

THE INNERVATION OF THE LIVER

The growing recognition of the varied rôles that may be assumed by chemical stimulants—hormones—in the organism has tended to deprive some of the branches of the nervous system of the functional dominance with which they were endowed in the physiology of earlier days. The classic studies on the actions of the nerves of the heart and of the salivary glands, for example, afforded full justification for the glorification of the dignity of nerve influences in fundamentally important life processes. Meanwhile the evidences for the comparable importance of humoral, in contrast with nervous, influences in various functional processes are gaining in number. Some may surprise readers who find satisfaction in resigning important physiologic responses to the nervous system alone. Notable are a series of observations recently made at the Mayo Foundation on some of the responses of the liver in the absence of all sympathetic innervation.[1] The nerve supply to the liver is generous, so that one might logically assume it to be of large physiologic importance. Yet, in the experiments of Lundberg, denervation of the liver did not produce a constant effect either on the amount of bile secreted or on the amount of pigment eliminated. Hillyard made a study to determine whether the increase in secretion of bile that follows the ingestion of food is dependent on the hepatic nerves. It was found that a mixed meal caused the greatest increase of biliary secretion, a protein meal caused a marked increase, a fat meal usually caused a moderate increase, occasionally there was neither increase nor decrease, and a carbohydrate meal gave variable results, either an increase or a slight decrease, or the output remained the same. After the hepatic nerves of both the sympathetic and the parasympathetic systems had been sectioned, fasting, feeding and collections were carried out as before, and it was noted that each of the foregoing test meals produced about the same increase in biliary secretion as before denervation. Evidently the increase in biliary secretion after the ingestion of food is not dependent on the nerves to the liver. Donald observed that denervation of the liver did not affect the value for fasting blood sugar, the hyperglycemia produced by epinephrine, dextrose and pituitary extracts, or the hypoglycemia produced by insulin. Accordingly, this study would seem to indicate that the regulation of the value for blood sugar does not depend on an intact nerve supply to the liver. Reasoning that the nerves to the liver are apparently vasomotor in function and that they would be factors in the control of certain constituents and processes in relation to the blood and to circulation, Hill studied the effects of denervation of the liver on the formed elements of the blood. The number of erythrocytes, the number of leukocytes, and the coagulation time of the blood remained unmodified. Thus has the largest glandular organ of the body been relieved of the supposed dominance of its nervous regulators.

Association News

THE NEW ORLEANS SESSION

Invitation to Members of Section on Dermatology and Syphilology to Visit Leprosarium

Dr. O. E. Denney, medical officer in charge, extends an invitation to the members of the Section on Dermatology and Syphilology of the American Medical Association to visit the National Leprosarium at Carville, La., on Tuesday, May 10. The institution is about 90 miles from New Orleans, and it is planned to have busses leaving the Roosevelt Hotel at 9 a. m.

Some 360 cases at the institution will permit the demonstration of many types of leprosy in different stages of advancement. Lunch will be served at the hospital, and on the way back to New Orleans a stop will be made to permit a visit to one of the old plantation houses.

Section members desiring to take advantage of this opportunity are asked to write either to Dr. Ralph Hopkins, Pere Marquette Building, New Orleans, or to the secretary of the section, Dr. Francis E. Senear, 55 East Washington Street, Chicago.

MEDICAL BROADCAST FOR THE WEEK

American Medical Association Health Talks

The American Medical Association broadcasts on Monday from 12 noon to 12:05 p. m. over Station WBBM (770 kilocycles, or 389.4 meters) and other stations of the Columbia Broadcasting System, and on Wednesday and Friday from 2:25 to 2:30 p. m., over Station WBBM, Chicago.

The program for the week is as follows:

February 22.	Compensations.
February 24.	Twelve Points in Noise Abatement.
February 26.	Whom Shall I Consult?

There is also a fifteen minute health talk sponsored by the Association on Saturday morning from 11:15 to 11:30.

The program for the week is as follows:

February 27.	Food for Children from Two to Six.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

CALIFORNIA

Personal.—Dr. Charles W. Decker succeeded Dr. George Parrish as health officer of Los Angeles, Nov. 1, 1931.——Dr. David M. Kindopp, Colfax, has been appointed health officer of Placer County to succeed Dr. Theodore Snypp, Auburn.——Dr. Elwin F. Reamer, Modesto, has been appointed health officer of Stanislaus County, succeeding the late Dr. Orion I. Bemis, Riverbank.——Dr. Carl F. Larson has succeeded Dr. Charna G. Perry as health officer of Sausalito.——Dr. Burt S. Stevens, San Francisco, was recently appointed a member of the state board of medical examiners to succeed Dr. Henry A. L. Ryfkogel, whose term expired.

Graduate School of Nursing.—The San Francisco Department of Health established a graduate school of nursing, January 1, at the San Francisco Hospital School of Nursing. The institution had heretofore been conducted for undergraduates, and the decision changing its policy followed a careful analysis of costs of patient care as well as of the problems of nursing education. Advanced courses in children's diseases, maternity and operating room technic, tuberculosis and communicable diseases are now outlined with the development of special courses in ward administration, genito-urinary diseases and psychiatric nursing proposed for the near future.

Society News.—Dr. Willis C. Campbell, Memphis, Tenn., addressed the California Academy of Medicine, January 23; during his stay in California, he also spoke before the University of California and Stanford University, Oakland Surgical Society, St. Mary's Hospital Society and the San Francisco

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[1] Lundberg, H.: Bile Flow and Bile Pigment Output After Denervation of the Liver, Am. J. Physiol. **98**: 602 (Nov.) 1931. Donald, J. M.: Studies on Carbohydrate Metabolism Following Denervation of the Liver, ibid., p. 605. Hill, F. C.: The Formed Elements of the Blood, Coagulation Time, Peptone Leukopenia After Section of the Nerves to the Liver, ibid., p. 610. Hillyard, L. V.: The Effect of Denervation of the Liver on Secretion of Bile, ibid., p. 612.

Dental Association. His subjects included the treatment of intracapsular fractures of the femur, arthroplasty of the knee, arthroplasty of the jaw, treatment of ununited fractures, and arthrodesis of the sacro-iliac joint.——A symposium on the liver was held before the Alameda County Medical Association, February 15, by Drs. Hugh G. MacLean, Robert A. Glenn, Safford A. Jelte and William W. Crane, Jr. Dr. John C. Meakins, Montreal, Canada, will conduct a clinic before the society at its meeting in March.

Semiannual Alumni Day.—The University of California Medical School, San Francisco, will hold its semiannual alumni day, March 22. The morning session will be devoted to operative clinics, pediatric ward rounds and a medical staff conference. In the afternoon the program will include addresses by Drs. Albert H. Rowe, Oakland, on allergic migraine and indigestion; Albert P. Krueger, indications and limitations of bacteriophage therapy; John B. Saunders, developmental pathology of congenital dislocation of the hip joint; Theodore L. Althausen, intolerance to carbohydrate associated with pathological intestinal flora; James F. Rinehart, monocytic leukemia; Dudley W. Bennett, treatment of certain types of heart disease, and the annual Alpha Omega Alpha lecture by Dr. John C. Meakins, Montreal, Que.

COLORADO

Two Years Without Diphtheria.—No diphtheria has been reported in Pueblo since Jan. 17, 1930, it is stated. This record was attained as the result of an extensive immunization campaign among school children and the control of persons described as diphtheria carriers who were discovered after cultures were taken by the health department.

Society News.—Dr. James R. Jaeger, Denver, addressed the Boulder County Medical Society, February 11, on "Diagnosis of Brain Lesions by Air Injection." Motion pictures on "The Repair of the Perineum" and "The Anatomy of the Female Pelvis" were shown before the Medical Society of the City and County of Denver, February 16.

Annual Registration Due March 1.—All practitioners of medicine and surgery holding licenses to practice in Colorado are required by law to register annually on or before March 1, with the secretary-treasurer of the board of medical examiners, and to pay a fee of $2, if a resident of Colorado, or $10, if a nonresident. Failure to pay this fee within the time stated automatically suspends the right of a licentiate to practice while delinquent. If he nevertheless continues to practice he is subject to the penalties provided by law for practicing medicine without a license.

FLORIDA

Adopt Plan for Cancer Clinic.—The Hillsborough County Medical Society, at a recent meeting in Tampa, approved a plan of operating a cancer clinic under the auspices of the society. Following the adoption of the plan, a committee was appointed to investigate the best methods of procedure to carry out the project. This committee comprises Drs. Bundy Allen, chairman; Robert P. Henderson, Jr., secretary; Emory W. Bitzer; William P. Adamson, and John R. Boling. Before the plan was submitted to the county medical society, a temporary organization was formed by a group of physicians in Tampa. Although the clinic will be principally for the study of cancer, it will be ready to support other types of medical research. Funds for its support have been offered by outside sources, it is reported. The money the clinic expects to receive will not be used for fees or salaries but to pay for material to be used in treatment of patients without cost to them.

ILLINOIS

Health Promotion Week.—Dr. Andy Hall, state director of public health, announces that health promotion week will be observed in Illinois, April 24-30. The announcement states that prevailing health conditions, which were never more favorable, are a tribute to the foundations on which scientific preventive medicine and public health service are built.

Health in 1931.—Provisional statistics indicate that mortality from tuberculosis and diphtheria, which, respectively, caused rates of 61.2 and 4.8 per hundred thousand, dropped to new low levels in Illinois during 1931. The general death rate was 11.1 per thousand people, a slight increase over the 10.9 rate of 1930 but lower than any previous record except that of 1921, which was identical. The average annual death rate of 11 for the two years of 1931 and 1930 was the lowest for any two successive years since Illinois was admitted to the U. S. death registration area. Typhoid caused 125 deaths during 1931, giving a rate of 1.6 against a previous low of 1.4 for 1929. The rates from pneumonia (71.6), influenza (21.3) and measles (4.3) were principally responsible for the rise in the general death rate. Poliomyelitis caused 101 deaths, a rate of 1.3, which was almost identical with the 1927 report.

Chicago

Institute for Tuberculosis Workers.—A two weeks' institute for tuberculosis workers, primarily laymen, will be conducted at Northwestern University Medical School, April 4-16. It will be conducted by the National Tuberculosis Association in cooperation with the medical school and the Chicago Tuberculosis Institute, and will be under the direction of Philip P. Jacobs, Ph.D., director of the extension service of the association. The registration fee is $10. Application blanks may be obtained from the state tuberculosis secretaries, or from the National Tuberculosis Association, 450 Seventh Avenue, New York. Topics for discussion will include child health education, case findings, care of physically substandard children, public health nursing, industrial health service, treatment methods, relation of the tuberculosis campaign to other social and public health movements, relation of the tuberculosis movement to the medical profession, and medical and scientific basis of the tuberculosis campaign.

IOWA

Society News.—Dr. Roy W. Tandy, Morning Sun, addressed the Louisa County Medical Society in Morning Sun, Dec. 10, 1931, on "Intravenous Therapy."——The Sioux County Medical Society was addressed in Hawarden, Dec. 10, 1931, by Dr. Archibald F. O'Donoghue, Sioux City, on "Compression Fractures of the Spine and Their Treatment by the Jack Method" and "The Rise of Skeletal Traction Apparatus in Treatment of Fractures, Especially Comminuted Fractures."——Dr. Jay F. Auner, Des Moines, conducted a clinic on skin diseases before the Washington County Medical Society, Dec. 1, 1931.——Dr. Emerson B. Dawson, Fort Dodge, addressed the Webster County Medical Society's annual meeting, Dec. 15, 1931, on sterility.——Dr. Wayne J. Foster, Cedar Rapids, read a paper on brain abscesses originating with ear infections before the all-day meeting of the Iowa Academy of Ophthalmology and Otolaryngology, Dec. 1, 1931, and Dr. Frederick L. Wahrer, Marshalltown, discussed the electrocoagulation of tonsils.——The Upper Des Moines Medical Society was addressed, Dec. 10, 1931, by Drs. Donald F. Rodawig, Spirit Lake, on "Craniocerebral Injuries"; Leslie G. Hill, Estherville, "Diagnosis and Treatment of Iritis"; Charles C. Collester, Spencer, "Diagnosis of Encephalitis and Conditions with Allied Symptoms," and Paul O. Nelson, Ayrshire, "Treatment of Pernicious Anemia."——At the meeting of the Waterloo Medical Society, Dec. 15, 1931, Drs. Charles Anderson Aldrich, Winnetka, Ill., and Harrold A. Bachmann, Chicago, spoke on "Nephritis in Children" and "Heart Findings in Children," respectively.——At the meeting of the Des Moines Academy of Medicine and the Polk County Medical Society, January 26, the speakers were Drs. Carl L. Gillies, Cedar Rapids, on "Charcot Joint"; Benjamin F. Wolverton, Cedar Rapids, "Subacute Bacterial Endocarditis," and Jesse T. Grayston, Marion, "Acute Mechanical Intestinal Obstruction."——The Marshall County Medical Society was addressed in Marshalltown, January 5, by Drs. Walter D. Abbott and Harry A. Collins, Des Moines, on "Injection of the Sympathetic Nervous System" and "Narcolepsy," respectively.——Dr. Robert L. Parker and Mr. Vernon Blank addressed the Jasper County Medical Society in Newton, January 5, on "County Contract for Care of the Indigent Sick."——The Linn County Medical Society will be addressed, March 10, by Dr. William R. Cubbins, Chicago, on "Injuries to the Menisci and Cruciate Ligaments of the Knee Joint." Dr. Howard L. Van Winkle, Cedar Rapids, will also speak on "Blood Transfusion." The society was addressed, February 11, by Drs. Fred M. Smith, Iowa City, and Arthur W. Erskine, Cedar Rapids, on "Rheumatic Heart Disease" and "Graham-Cole Test," respectively.

LOUISIANA

Dr. Castellani Returns to New Orleans.—Dr. Aldo Castellani, London, England, has accepted the position of professor of tropical medicine and head of the department at the Louisiana State University Medical Center, New Orleans. His appointment is for the year 1932-1933. Dr. Castellani resigned from a similar position at Tulane University of Louisiana School of Medicine in 1929 to devote full time to work in connection with a study of tropical diseases at the Ross Institute of Tropical Medicine, London, of which he was director. Dr. Castellani was born in Florence, Italy, but spent most of his childhood in England.

Personal.—Dr. Henry O. Colomb, formerly of Providence, R. I., has been appointed clinical director of Central Louisiana State Hospital, Pineville.——An honorary fellowship of Ross Institute for Tropical Diseases, London, has been conferred on Dr. Charles C. Bass, dean and professor of experimental medicine, Tulane University of Louisiana School of Medicine, New Orleans, "in recognition of his important discoveries with regard to malaria," with especial reference to his accomplishment of the first successful cultivation of the malaria parasite outside the human body. The Ross Institute was founded in honor of Sir Ronald Ross, the discoverer of the mode of transmission of malaria by mosquitoes.

Society News.—The Orleans Parish Medical Society was addressed, recently, by Dr. Charles A. Bahn on "Headaches of Ocular Origin," and by Dr. Oscar W. Bethea, "Some Deductions from the Analysis of 1,850 Physical Examinations." At another recent meeting of the society, the speakers were Drs. Alfred C. King on "Some Critical Remarks on the Whys and Wherefores of Bad Results in Certain Fractures"; Reginald A. Cutting, "The Place of Dextrose Phleboclysis in Surgery," and Thomas B. Ayo, "Induction of Labor with Castor Oil, Quinine and Puncture of the Membrane." Dr. Adolph Jacobs addressed the society's meeting, January 25, on "Sedimentation Rate of Erythrocytes; Brief History and Discussion of Theories; Application in Gynecology," and Dr. Howard R. Mahorner spoke on "Goiter: A Brief History of Its Surgery and a Review of 128 Operated Cases in a Non-Goiter District."

Health Control in Flooded Areas.—Floods along the Red and Ouachita rivers and the lower Tensas Basin have driven from their homes about 20,000 people in ten parishes, according to a report, February 12. The flood of 1927 demonstrated the value of organized parish full time health units and since that time a unit has been established in every parish in the flooded area except one. The present emergency is being met by the state board of health through these units, which may be mobilized in part or in their entirety for service in any parish or section where the necessity may arise. Refugee camps have been located at strategic points; sanitary measures have been instituted, and immunization of the refugees against smallpox, typhoid and diphtheria has been carried out by the local health units under the direction of the state board of health. Constant supervision is being exercised in order to prevent an outbreak of any communicable disease. Up until the time of this report, no epidemics had occurred.

MARYLAND

Commemoration Exercises at Johns Hopkins.—At the exercises commemorating the fifty-sixth anniversary of the Johns Hopkins University, February 22, portraits of four past and present faculty members will be presented to the university. Joseph S. Ames, LL.D., president of the university, will preside, and Sir Wilmott Lewis, Washington correspondent of the London *Times*, will be the principal speaker. George F. Baker, Jr., New York, will present a portrait of Dr. William H. Wilmer, professor of ophthalmology in the school of medicine and head of the Wilmer Ophthalmological Institute, Johns Hopkins Hospital, since 1925. The painting is the work of Frank O. Salisbury, London. Dr. William H. Welch, professor emeritus of the history of medicine, will present a portrait of the late Dr. William S. Halsted, first professor of surgery in the school of medicine. Dr. William S. Thayer, professor emeritus of medicine, will present a portrait of Dr. Frederick H. Baetjer, professor of clinical roentgenology. Both of these portraits are the work of Eric Haupt. William Seifriz, Ph.D., professor of botany, University of Pennsylvania, will present a portrait of Duncan Starr Johnson, Ph.D., professor of botany and director of the Botanical Laboratory and the Botanical Garden, Homewood, Johns Hopkins University. Thomas C. Corner, Baltimore, painted the portrait.

Society News.—Dr. John Ruhräh, Baltimore, addressed the Osler Society of the Medical and Chirurgical Faculty, January 19, on "Art and Pediatrics."——The Baltimore City Medical Society was addressed, January 8, by Drs. Lloyd W. Ketron on "Tuberculosis of the Skin," and George W. Crile, Cleveland, "Principles Involved in and Clinical Aspects of Denervation of the Adrenal Glands." The society was addressed, January 22, by Drs. Llewellyn Williams Lord on "The Etiology of Pityriasis Rosea"; Leo Brady, "Carbuncle of the Kidney," and Francis J. Kirby, "Cancer of the Breast."——The Baltimore County Medical Association was addressed, January 20, at Catonsville by Drs. Robert E. Garrett on "A Case of Addison's Disease with a Depressive Psychosis," and Silas W. Weltner, "A Behavior Study of a Group of Constitutional Psychopathic Inferiority Cases."——Dr. Francis Dana Coman addressed the Maryland Academy of Sciences recently on the Byrd South Pole expedition.——Dr. Claude S. Beck, Cleveland, addressed the Johns Hopkins Medical Society, Baltimore, February 8, on "Surgical Treatment of Pick's Disease and Pneumocardiac Tamponade in Relation to Surgery of the Heart."——A free maternity clinic for outpatients was dedicated at Sinai Hospital, Baltimore, January 17. The clinic is a gift of the Baltimore Chapter number 35, United Order of True Sisters, which has equipped and will maintain it. Dr. Alan F. Guttmacher will be in charge.

MASSACHUSETTS

Bill Introduced.—H. 1084, to amend the nursing practice act, proposes that all applicants for registration as nurses be citizens of the United States.

Health at Lowell.—Telegraphic reports to the U. S. Department of Commerce from eighty-three cities with a total population of 36 million, for the week ended February 6, indicate that the highest mortality rate (20.9) appears for Lowell, and the rate for the group of cities as a whole, 11.8. The mortality rate for Lowell for the corresponding period last year was 15.1, and for the group of cities, 14.3. The annual rate for eighty-three cities for the five weeks of 1932 was 12, as against a rate of 14.4 for the corresponding period of the previous year. Caution should be used in the interpretation of these weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits, or that they have large Negro populations, may tend to increase the death rate.

Mental Hygiene Courses.—The Massachusetts Society for Mental Hygiene and the state division of university extension are [illegible] ucting courses on mental hygiene. Dr. [illegible] Topeka, Kan., opened the course, February 1, in Boston, speaking on "The Human Mind—Personal Applications of Mental Hygiene," and Dr. Wilhelm E. Blatz, Toronto, spoke, February 8, on "The Young Child's Needs." In the future, the program includes Dr. Douglas A. Thom, Boston, February 15, on "Normal Youth and Its Everyday Problems"; Dr. Samuel W. Hartwell, Worcester, February 29, "How Bad Are 'Bad' Boys?"; Dr. Bruce B. Robinson, Newark, N. J., March 7, "Mental Hygiene in the Schools"; Dr. Edgar Van Norman Emery, New Haven, March 14, "Importance of the Teacher's Mental Health"; Dr. George H. Preston, Baltimore, March 21, "Parental Attitudes Reflected in the Home," and Dr. Albert Warren Stearns, Boston, March 28, "Crime in the Present Day." In Framingham, a course began, January 27, on "Mental Hygiene of Childhood and Adolescence"; in Melrose, January 20, "Personal and Social Aspects of Mental Hygiene," and in Orange, January 26, on "Mental Hygiene of Childhood and Adolescence."

MICHIGAN

Society News.—Dr. James Milton Robb, Detroit, addressed the Monroe County Medical Society, January 21, on "The Economics of Medicine."——A symposium on functions and disorders of the kidneys was included in the program of the annual meeting of the Washtenaw County Medical Society.——Dr. E. Starr Judd, Rochester, Minn., addressed the Wayne County Medical Society, February 16, on "Relation of the Physician to the Community." A dinner was given in honor of Dr. Judd preceding the meeting.——Dr. Robert E. Cumming, Detroit, addressed the Kalamazoo Academy of Medicine, February 16, on "Kidney Infections."

Typhoid Outbreak Follows Wedding.—Two fatalities resulted from an outbreak of typhoid, which followed a recent Polish wedding in Bay City. More than twenty persons were ill following the wedding. It was found that one small group of persons who had handled a portion of the food had had typhoid seven years previously. Tests on all but one of the group gave negative results. This person proved to be a carrier. According to Dr. George W. Moore, the health officer, the points of interest in this outbreak are, first, the seven year interval between the attack of typhoid and its transmission at the wedding; second, the fact that so far as known no other transmission has taken place during these seven years.

Dental Care for Semi-Indigent Children.—Plans to provide dental attention for semi-indigent children, at reduced fees and to reopen the health department's free clinics by means of volunteer service were formulated, January 16, at a meeting of the relief committee of the Detroit District Dental Society, it is reported. A city-wide examination of school children began, January 25, through the cooperation of dental inspectors from the health department and members of the society. The plan is to aid children whose parents ordinarily have the means to pay the full cost but are now in straitened circumstances and refuse charity. It is expected that volunteers from the society's membership will staff the thirty-two clinics of the health department.

Camp for Handicapped Children.—The W. K. Kellogg Foundation has provided for the establishment of a permanent fresh air camp for physically handicapped children, involving an expenditure of about $100,000. The plans of the W. K. Kellogg Foundation Pine Lake Camp, as it will be known, call for the erection of an administration building, staff quarters, small emergency hospital building and twenty-four unit cottages, and will provide accommodations for 200 handicapped children for an eight or nine weeks' camping period every summer; July 1 is the date designated for its opening. The site chosen on Pine Lake is desirable, it is reported, because of the ideal shoreline, particularly suitable for sunlight and air bath treatments for handicapped children. The staff of the camp will include physical therapists, chief and regular counselors, secretary, quartermaster and dietitian. Dr. Matthew R. Kinde, medical director of the Barry County health unit, will act as medical director of the camp.

MISSOURI

Urological Society Formed.—The St. Louis Urological Society, organized January 7, proposes to aid scientific urology in St. Louis, to cooperate with the St. Louis Medical Society and to promote fellowship among its members. Dr. Bransford Lewis was elected president; Dr. Joseph Hoy Sanford, vice president, and Dr. Grayson L. Carroll, secretary. Drs. John R. Caulk, Cyrus E. Burford and Helmuth H. Kramolowsky were named members of a committee to formulate a constitution and by-laws to be presented at a called meeting in the spring, according to the *Journal of the Missouri Medical Association.*

Society News.—A discussion of arthritis by Dr. Wilber E. Post, Chicago, was a feature of the monthly clinic of the Kansas City Southwest Clinical Society, February 9. In the evening, the Jackson County Medical Society was addressed by Dr. Post on "Recent Advances in Nephritis"; Dr. Ferdinand C. Helwig conducted a pathologic conference, and Dr. Frederick C. Narr presented "Microscopic and Macroscopic Demonstrations of Pathology of the Kidney."——Dr. Walter C. Alvarez, Rochester, Minn., addressed the Kansas City Academy of Medicine, February 19, on "Practical Application of Recent Discoveries in the Field of Gastro-Intestinal Physiology."——Dr. George W. Robinson, Jr., among others, addressed the Jackson County Medical Society, Kansas City, February 16, on "Cause and Treatment of Paraplegia."

NEW JERSEY

Bill Introduced.—A. 164, to amend the law regulating the practice of chiropractic, proposes that licensed chiropractors be "authorized to use in connection with hand manipulation and adjustment such adjuncts, substitutes or other means or methods in conjunction with chiropractic treatment without the use of drugs as may be essential or necessary to conform to the modern methods of treatment."

Society News. — The Essex County Medical Society was addressed, February 12, by Dr. Livingston Farrand, Ithaca, N. Y., on "Report of the New York State Health Commission."——At the meeting of the Bergen County Medical Society, February 9, Drs. Joseph M. Kuder, Mount Holly, spoke on "Public Relations and the County Medical Society," and Frank L. Meleney, New York, "Recent Studies in Peritonitis."——An addition to the Underwood Hospital, Woodbury, will be built and equipped by Mrs. Ella D. Dunn and her family, as a memorial to her husband, John C. Dunn, for many years a manufacturer in Camden.

NEW YORK

Bills Introduced.—S. 533 and A. 598, to amend the pharmacy act, propose (1) that a drug be deemed misbranded, within the meaning of the act, if its container does not state the percentage contained therein of barbituric acid and (2) that the manufacture and sale of proprietary medicines be exempt from the operation of the act, provided such medicines contain no poisonous, deleterious or habit-forming drugs. S. 624 proposes to prohibit the sale of food in drug stores and pharmacies and to make it unlawful for any druggist or pharmacist to dispense any beverage on the same day that he dispenses drugs. S. 635 and A. 793, to amend the law regulating the practice of midwifery, propose to limit the registration of midwives to those applicants possessing a diploma from a school of midwifery recognized by the state commissioner of health. The commissioner, it is proposed, however, may renew the license of any midwife now licensed. S. 675 proposes to regulate the practice of barbering. A. 684, to amend the workmen's compensation act, proposes, in effect, to make compensable any occupational disease contracted in any employment covered by the act. A. 754, to amend the dental practice act, proposes that any woman who for four years prior to Sept. 1, 1916, was continuously in the employ of a licensed dentist and had acquired experience in oral hygiene, shall be licensed as a dental hygienist without examination.

New York City

First Nurse-Midwife Training School.—The first training school for graduate nurses in midwifery in the United States was opened, February 2, at the Lobenstine Midwifery Clinic, 274 West One Hundred and Thirteenth Street. This clinic will care for expectant mothers living in a restricted area. The work will be under the supervision of the following board of directors: Drs. George W. Kosmak, president, Benjamin P. Watson, George Gray Ward, Jr., George L. Brodhead, Shepard Krech, Linsly R. Williams and Miss Hazel Corbin. The attending staff includes Drs. William H. Studdiford, Jr., Donato Anthony d'Esopo, Claude Edwin Heaton and Albert H. Aldridge. The necessary budget was provided by Mrs. E. Marshall Field and a group of sixty women as a memorial to the late Dr. Ralph Waldo Lobenstine. This venture is a part of the plan for midwife training and supervision proposed by the Association for the Promotion and Standardization of Midwifery, which was recently incorporated in New York. One of the objects of this teaching clinic will be to supply health departments with well trained nurse-midwives to carry out such supervision under medical direction, and another will be to offer courses to midwives practicing in the city. It was pointed out that about 10 per cent of all the births in the city are attended by midwives.

Society News.—Dr. William H. Park addressed the Public Health Officers Association of the City of New York, February 2, on "Epidemiology and Serum Treatment of Poliomyelitis."——Drs. Linsly R. Williams and Edward H. Hume discussed graduate medical education at the monthly postgraduate lecture session of the North Harlem Medical Society, January 22.——Dr. Harold Neuhof addressed the Medical Society of the County of Queens, January 26, on "Recent Clinical Advances in the Pathogenesis, Diagnosis and Surgical Treatment of Lung Abscess."——At a meeting of the Queensboro Surgical Society, January 18, Dr. Howard W. Neail discussed abortions.——Dr. John J. Moorhead addressed the New York Surgical Society, January 27, on "Further Experiences with Knee Joint Arthrotomy."——Dr. George Draper delivered an address on "Relation of Human Constitution to Disease, with Particular Reference to Peptic Ulcer and Infantile Paralysis" before the New York Physicians' Association, January 27.——A symposium on malignant conditions of the colon was held at the stated meeting of the New York Academy of Medicine, February 4, with the following speakers: Drs. Howard T. Karsner, Cleveland; Thomas R. Brown, Baltimore; Byrl R. Kirklin and Fred W. Rankin, Rochester, Minn.——Dr. Charles Geschickter, Baltimore, addressed the New York Roentgen Society, February 15, on bone tumors.——Drs. Samuel Brock and Cornelius G. Dyke, among others, addressed the New York Neurological Society, February 2, on "Cerebral Blood Vessel Malformations."——The Central Medical Council, composed of the membership of five leading medical societies in Brooklyn, gave a dinner, January 27, in honor of Dr. William Linder, recently elected president of the Kings County Medical Society.——Dr. James E. King, Buffalo, will lecture at the New York Post-Graduate Medical School and Hospital, February 23, on "Backache in Women and the Value of the Pessary." Dr. King will also hold an operative clinic.

OKLAHOMA

Course in Obstetrics.—About 500 physicians from Oklahoma County and neighboring counties registered for the graduate lectures on obstetrics in Oklahoma City during the afternoon and evening of January 23. The guest speakers were Drs. Everett D. Plass, Iowa City, Iowa; William T. McConnell, Louisville, Ky., and James R. Manley, Duluth, Minn. These physicians gave a similar course in Osage, Carter, Greer and Caddo counties.

Society News.—Dr. Richard L. Sutton, Jr., Kansas City, Mo., addressed the Craig County Medical Society at Vinita, recently, on diagnosis and treatment of cancer of the skin; he also gave a travel lecture and held a dermatologic clinic.——Drs. Louie F. Barney, Kansas City, Kan., and Abraham L. Blesh, Oklahoma City, addressed the Ottawa County Medical Society, Dec. 18, 1931, at its annual banquet and game dinner at Miami, on "Treatment of Acute Generalizing Peritonitis" and "Medical and Surgical Reminiscences," respectively.——Physicians of western Oklahoma attended a special meeting sponsored by the University of Oklahoma School of Medicine, January 20, at Mangum. The speakers were Drs. Everett D. Plass, Iowa City, who discussed management of normal pregnancy, sterilization and contraceptive advice; James R. Manley, Duluth, Minn., vaginal discharge during pregnancy and puerperal sepsis, and William T. McConnell, Louisville, Ky., prenatal care and toxemias of pregnancy. ——At a recent meeting of the Southern Oklahoma Medical Association in Purcell, speakers included Drs. George E. Johnson, Ardmore, on "Physiological and Pathological Conditions of the Thyroid"; Walter H. Livermore, Chickasha, "Spinal Anesthesia"; George S. Barger, Purcell, "Tonsils from the Standpoint of the General Practitioner and Specialist," and Rufus Q. Goodwin, Oklahoma City, "Relation of the Physician to the Patient."——The medical societies of Woods and Alfalfa counties held a joint meeting at Holdenville, January 26, with three speakers from Oklahoma City on the program, as follows: Drs. Henry Turner, "Interrelationship of Endocrinology"; Horace Reed, "Differential Diagnosis of Abdominal Conditions," and Philip McNeill, "Nontuberculous Infections of the Lungs."

OREGON

Licenses Revoked.—The licenses of Drs. Wilbur H. Thompson, Elgin, Chester A. Bump, formerly of Portland and now of San Francisco, and Joseph A. Wonderlick, La Grande, have recently been revoked by the Board of Medical Examiners of the State of Oregon for unprofessional conduct.

Society News.—Dr. Franklin G. Ebaugh, Denver, addressed the Portland City and County Medical Society, January 20, on psychiatry.——Dr. Loyal Davis, Chicago, addressed a joint meeting of the Portland City and County Medical Society and Portland Academy of Medicine, February 3, on studies on the pathways of transmission of pain, and its surgical relief.

PENNSYLVANIA

Personal.—Dr. Norman R. Goldsmith, Pittsburgh, won the annual case report contest of the Allegheny County Medical Society. The medical society has conducted this contest for interns for the past six years. Dr. Goldsmith is an intern at Mercy Hospital.

Society News.—Dr. Moses Behrend, Philadelphia, addressed the Northumberland County Medical Society, Shamokin, February 3, on the gallbladder. The society sponsored a public lecture at Sunbury, January 19, by Dr. William D. Stroud, on "The Presence of Heart Disease in Children."——At the meeting of the Lycoming County Medical Society, Williamsport, February 12, Drs. Albert F. Hardt, Williamsport, and Edward Weiss, Philadelphia, spoke on "Points in the Diagnosis and Treatment of Acute Abdominal Disease" and "Recent Advances in Our Conception of Kidney Diseases," respectively.——Case reports comprised the meeting of the Muncy Valley Medical Association, January 20; the speakers were Drs. Harold F. Baker, Muncy, and Amos V. Persing, Jr., Allenwood.—— "Medical Science and Medical Art" was the subject of Dr. Edward J. G. Beardsley, Philadelphia, before the Cambria County Medical Society, February 11; "Research and Study: A Review" was discussed by Drs. Leo W. Hornick, Kent A. Bowman and Calvin C. Rush, Johnstown.——At the meeting of the Delaware County Medical Society, February 11, Drs. John S. Eynon and Abraham Maxwell Sharpe, Chester, spoke on "Diagnosis and Treatment of Bone Tumors" and "X-Ray Aspect of Bone Tumors," respectively. Among others, J. DeHaven Ledward, Esq., Chester, addressed the annual meeting of the society, January 14, on "Expert Testimony."

Philadelphia

Society News.—The Philadelphia County Medical Society will hold a medical-dental night, February 24; the speakers will be Dr. Alfred Hess, New York, on "Nutritional Factors in Relation to Dental Caries"; Dr. Collin Foulkrod, "Nutrition of the Pregnant Woman in Its Relation to Dental Health and Disease of Mother and Child," and Percy R. Howe, D.D.S., Boston, "Nutritional Aspects of Dental Disturbances." Dr. Temple S. Fay delivered the weekly graduate seminar of the society, February 19, on "Intracranial Pressure Problems as Related to the General Practitioner."

Personal.—Dr. David H. Bergey, formerly professor of hygiene and bacteriology, University of Pennsylvania School of Medicine, has been appointed director of research in biology at the National Drug Company.——Dr. Catharine MacFarlane, head of the department of gynecology, Woman's Medical College of Pennsylvania, was recently elected a fellow of the Philadelphia College of Physicians. Dr. MacFarlane is said to be the first woman so honored in the history of the college, which was organized in 1787.——Joseph W. E. Harrisson, Pharm.D., has been appointed lecturer in physiologic assaying at the Philadelphia College of Pharmacy and Science.

Changes in Health Department.—Dr. Seth A. Brumm has been appointed chief of the division of communicable diseases of the Philadelphia Department of Public Health. The division of tuberculosis, as such, has been abolished, and its administration transferred to the division of communicable diseases. The change in administration discontinues Dr. Charles J. Haines, former chief of the division of communicable diseases, and Dr. Abraham J. Cohen, former chief of the division of tuberculosis. Three hundred and seventy-six employees were dropped from the department of public health, February 1. This revamping was necessary to operate the department effectively and economically, it was said.

Memorial to Dr. Sailer.—A marble memorial tablet and an endowment for a bed were presented to the Children's Heart Hospital, February 4, in honor of Dr. Joseph Sailer, founder of the hospital. The memorial was the gift of friends of Dr. Sailer from all over the country. Dr. Truman G. Schnabel made the presentation, and a eulogy of Dr. Sailer and his work was given by Dr. Wilmer Krusen. The hospital has a present capacity of 50 beds, but plans are being laid for the erection of additional wings and the ultimate enlargement of facilities to 200 beds. Dr. Sailer, who died in 1928, was professor of clinical medicine at the University of Pennsylvania School of Medicine. He was chairman of the Section on Gastro-Enterology and Proctology of the American Medical Association, 1927-1928.

TENNESSEE

University News.—The Rockefeller Foundation recently granted $250,000 to Vanderbilt University School of Medicine for a research fund, with the understanding that a supplementary amount shall be secured by the authorities of the school. An appropriation of $50,000 was made by the General Education Board for the medical library. The research fund will be divided and distributed over a period of eight years, while the medical library grant will be distributed over a period of four years. Dr. Thomas S. Cullen, professor of clinical gynecology, Johns Hopkins University School of Medicine, delivered the Phi Beta Pi lecture at Vanderbilt University School of Medicine, February 16, on "Gynecology of Yesterday and of Today."

Society News.—About 300 health workers attended the annual conference of health workers in Nashville, January 18-20, under the chairmanship of Dr. Eugene L. Bishop. Among speakers were Dr. John A. Ferrell and Louis I. Dublin, Ph.D., both of New York; Dr. Clifford E. Waller and Dr. Walter T. Harrison of the U. S. Public Health Service, and J. A. Le Prince, sanitary engineer of the public health service. Subjects discussed included control of tuberculosis, diphtheria, venereal disease and malaria, sanitation, city and county health work, vital statistics, maternal and infant mortality and typhoid in rural and urban areas.——Dr. William D. Hickerson, Nashville, addressed the Williamson County Medical Association in January on tuberculosis in Tennessee. ——Dr. Manton L. Shelby, among others, addressed the Montgomery County Medical Society, Clarksville, January 20, on myelogenous leukemia.——Dr. Carl R. Crutchfield addressed the Nashville Academy of Medicine, February 5, on "Spinal Anesthesia," with report of more than 250 cases.

VERMONT

Personal.—Dr. Charles Gordon Abell, Enosburg Falls, has been appointed a member of the state board of health to succeed Dr. Edward J. Rogers, Pittsford, who resigned recently. Dr. Rogers had been a member of the board for nine years and chairman for several years.——Dr. Merritt H. Eddy, Middlebury, celebrated his ninety-ninth birthday, January 25; he is said to be the oldest licensed, practicing physician in New England. On his ninety-eighth birthday Dr. Eddy laid the cornerstone for the New England Medical Center in Boston (The Journal, March 28, 1931, p. 1091).

GENERAL

Examination in Otolaryngology.—The American Board of Otolaryngology will hold an examination, September 17, at the Royal Victoria Hospital, Montreal. Application blanks may be procured from the secretary, Dr. William P. Wherry, 1500 Medical Arts Building, Omaha, Neb. The meeting of the American Academy of Ophthalmology and Otolaryngology will be held in Montreal, September 19-23, with headquarters in the Mount Royal Hotel.

Four Weeks of Automobile Fatalities.—The U. S. Department of Commerce announces that, during the four weeks ended January 23, eighty-three large cities in the United States reported 867 deaths from automobile accidents, as compared with 742 deaths during the four weeks ended Jan. 24, 1931. Most of these deaths were the result of accidents that occurred within the corporate limits of the city, although some accidents occurred outside the city limits. For the fifty-two week periods ended Jan. 23, 1932, and Jan. 24, 1931, the totals for all the cities were, respectively, 9,140 and 8,927, which indicates a recent rate of 25.6 per hundred thousand of population.

Celebration of Discovery of Tubercle Bacillus.—In celebration of the fiftieth anniversary of Robert Koch's announcement of his discovery of the tubercle bacillus, a special translation of Koch's original paper of March 24, 1882 (*Berl. klin. Wchnschr.* **19**:221-230, 1882), published for the first time in English, is being printed by the National Tuberculosis Association. A copy will be given free to each senior student in every grade A medical college in the United States. It is planned to have another edition of the booklet for sale and distribution through state tuberculosis and health associations. The association is also planning to observe the anniversary nationally through newspapers, news reels and broadcasting, and will provide special material and suggestions to assist local societies in working up a program. The bulletin of the association points out that Koch's anniversary precedes the beginning of the annual early diagnosis campaign by seven days.

Pacific Coast Surgical Association.—The seventh annual meeting of the Pacific Coast Surgical Association will be held at the Biltmore Hotel, Santa Barbara, Calif., February 25-27, under the presidency of Dr. Rea E. Smith, Los Angeles. Speakers will include Drs. Park Weed Willis, Seattle, on "Appendicitis—When to and When Not to Operate"; Richard B. Dillehunt, Portland, "Reconstruction of Disabled Elbows in Children"; Samuel L. Caldbick, Everett, Wash., "Endothelioma of the Stomach"; Horace G. Wetherill, Monterey, Calif., "Surgical Aspects of the Treatment of Mental Defectives, Sexual Perverts and Criminals"; Albert J. Scholl, Jr., Los Angeles, "The Ureter After Nephrectomy," and Karl F. Meyer, Ph.D., San Francisco, "Newer Knowledge of Tetanus." Prof. Shiota Matsuoka of the University of Tokyo, Japan, will address a meeting, Wednesday evening, on "A Comparison of Surgical Methods Used in Japan and America." An extensive program of entertainment has been arranged.

Phillips Memorial Prize Awarded to Dr. Avery.—The American College of Physicians has selected Dr. Oswald T. Avery of the Rockefeller Institute for Medical Research, New York, as the recipient of the first John Phillips Memorial Prize. This award of the sum of $1,500 was established by the college to perpetuate the memory of Dr. John Phillips, Cleveland, who lost his life in the Cleveland Clinic disaster, May 15, 1929. The presentation will be made to Dr. Avery during the annual clinical session of the college in San Francisco, April 6, when he will deliver an address on "The Rôle of Specific Carbohydrates in Pneumococcus Infection and Immunity." The recommendation of the committee which made the selection cites Dr. Avery's work on the pneumococcus, "beginning with the discovery of the type-specific soluble capsular polysaccharides and culminating in the discovery of a bacterium producing an enzyme which splits the polysaccharides of type 3 pneumococcus in vitro, thus rendering it susceptible to phagocytosis and thereby protecting the animals infected with it."

Medical Bills in Congress.—*Change of Status:* S. 100 has been favorably reported to the Senate, amending the laws of the District of Columbia relating to degree-conferring institutions so as to authorize any institution heretofore incorporated under such laws, operating exclusively in a foreign country, to use the words "American," "Federal," etc., in its title (Senate Report No. 236). H. R. 4724 has been favorably reported to the House, without amendment, conferring the benefits of hospitalization and the privileges of soldiers' homes on certain persons who served in the Quartermaster's Corps or under the jurisdiction of the Quartermaster General during the war with Spain, the Philippine insurrection or the China relief expedition (House Report No. 432). *Bills Introduced:* S. 3226, by Senator Sheppard, Texas, to extend the benefits of the Emergency Officers' Retirement Act to provisional officers of the Regular Establishment who served during the World War. S. 3530, by Senator Blaine, Wisconsin, to amend the Longshoremen's and Harbor Workers' Compensation Act so as to deny compensation to an employee who unreasonably refuses to submit to medical or surgical treatment. S. 3591, by Senator McGill, Kansas, to amend the World War Veterans' Act to provide, among other things, that in considering claims the same credence shall be given to the statements of physicians in private practice as is given to the statements of physicians attached to the Veterans' Administration, "and the statements of lay physicians shall be presumed to be true until proven false." H. R. 8979, by Representative Johnson, Oklahoma, and H. R. 8993, by Representative Cartwright, Oklahoma, to liberalize the disability allowances for veterans of the World War suffering from disabilities contracted in civil life. H. R. 9139, by Representative Kahn, California, to erect a veterans' hospital in California to be used exclusively for women veterans.

FOREIGN

Sir Norman Walker Elected President of British Council.—Sir Norman Walker, Edinburgh, was elected president of the General Medical Council of Great Britain at its meeting in London, recently, succeeding Sir Donald MacAlister, whose health has been impaired by a long illness. Sir Norman has served as direct representative on the council for Scotland since 1907. He was president of the Royal College of Physicians of Edinburgh from 1929 until Dec. 3, 1931, when Dr. Robert Thin was elected to succeed him. In connection with his work for the council he has visited India, Canada and the United States. In 1928 he was the guest of the Council on Medical Education and Hospitals of the American Medical Association at the annual congress. Sir Donald MacAlister had been president of the council since 1904 but had been a member since 1889, a total service of forty-two years.

Medical Relief in China's Flood District.—The department of hygiene and sanitation of the National Flood Relief Commission has devoted its efforts in the recent Yangtze River disaster to three main features: prevention of epidemics, public sanitation and medical relief. With a personnel of 72 physicians, 11 pharmacists, 65 nurses, 4 sanitary engineers, 72 sanitary inspectors, 25 secretaries and others, the department is maintaining six centers, of which the largest is in the Wu-Han area. Dysentery, malaria and typhoid appeared in epidemic proportions, according to the *National Medical Journal of China.* Thousands of inoculations for cholera and typhoid have been given; although cholera appeared in September, it abated with the coming of cooler weather. The winter was expected to bring louse-borne diseases such as typhus and relapsing fever in greater number, however. In view of the enormity of the task confronting the department, medical schools were requested to close temporarily in order to release both staff and students to participate in an antiepidemic campaign on a national scale.

Foreign Schools Restrict American Applicants.—A warning to American students, who are said to be flocking in great numbers to foreign medical schools, was contained in the January issue of the bulletin of the Institute of International Education. It is said that nearly 1,000 Americans were studying in schools of Europe and Canada alone last year. A study of the situation has shown that the majority of these students are those who have been refused admittance to American medical colleges. It appears that although the United States has the largest relative supply of physicians of any country in the world and that there is no apparent need for more, these facts are not a deterrent to the numbers of young persons who wish to study medicine. Within the past two years European schools have taken drastic measures to reduce the number of applicants. According to the bulletin, more than 200 were rejected at Edinburgh and the same number at Aberdeen, while Glasgow has had an American quota for two years. The hope is expressed that in the interest of the students themselves and of international good will, vocational advisers in colleges will present these facts with frankness to aspirants for the medical profession.

Society News.—The second General Congress on Child Welfare will be held in Geneva, Switzerland, July 18-21. The work of the congress will be divided into three sections as follows: section I, comparative study of experience in connection with children placed in foster homes and institutions; section II, the preschool child and section III, the post-school child. Further information may be obtained from the secretariat of the congress, care of the Save the Children International Union, 31 Quai du Mont-Blanc, Geneva.——An international congress on biliary lithiasis will be held at Vichy, France, September 19-22, under the chairmanship of Professor Carnot of the French Academy of Medicine. The congress will be divided into four sections: medicine, surgery, therapeutics and hydrology, and electroradiology and physical therapy. Papers are limited to five pages of forty lines each and must occupy only ten minutes' reading time. Full information may be obtained from the General Secretariat of the congress, 24 Rue des Capucines, Paris.——Sir Hubert Bond delivered the twelfth Maudsley Lecture of the Royal Medico-Psychological Association of England, Nov. 24, 1931, on the life and work of Maudsley.——The second assembly of the International Association of Prophylactic Pediatrics will be held in July at Geneva, Switzerland, under the chairmanship of Dr. Taillens. Topics to be discussed include infant mortality during the first week of life, prophylaxis of tuberculosis in schools, prophylaxis of syphilis in infants, control and regulations on milk to be given to infants, and respiratory diseases in young children.——The first national congress of the Italian Society of Oral Surgery and Dentofacial Orthopedics will be held at the University of Parma in May. This society was organized in November, 1931, in Parma, with Dr. Paolucci as honorary president.——The third International Congress on Sanitary Technic and Urban Hygiene, which will be held in Lyons, France, March 7-10, will be organized in six sections, as follows: transport hygiene, hygiene of habitations and places of assembly, hospitals and social work, atmospheric problems, disinfection and industrial hygiene, and prevention of accidents. There will also be an exhibit on these subjects. Information will be sent on application to Professeur Garin, commissionaire général, rue Ménestrier, Lyons.——The *Indian Medical World*, published in Calcutta, has changed its name to the *Journal of the Indian Medical Association*. The new name was first used with the issue of September, 1931.

Government Services

Surgeon General Cumming Reappointed

President Hoover has reappointed Dr. Hugh S. Cumming for another term of four years as surgeon general of the U. S. Public Health Service. The nomination was confirmed by the Senate, January 28. General Cumming was originally appointed to this position in February, 1920. He was born in Virginia, Aug. 17, 1869, and entered the public health service as assistant surgeon in 1894. On completion of his present reappointment, General Cumming will have served continuously in this office for sixteen years.

Army Personals

Lieut. Orlo C. Paciulli, relieved at Fort Crook, Nebraska, and assigned to duty in the Panama Canal Department, effective about March 10; Major James G. Hall, Fort Brown, Texas, for the convenience of the government, proceeded to his home about November 17 to await retirement; Major Frederick H. Sparrenberger and Capt. Harvey I. Rice, having been found incapacitated for active service on account of disability incident thereto, their retirement is announced; Major Myron P. Rudolph, on completion of present tour of foreign service, is assigned to duty in the Philippine Department; Capt. James O. Gillespie, on completion of present tour of foreign service, is assigned to duty at Fort Sam Houston, Texas; Col. Howard H. Baily, for the convenience of the government, proceeded to his home about Dec. 11, 1931, to await retirement; Capt. Lonzo R. Bice, having been found incapacitated for active service on account of disability incident thereto, and such finding having been approved by the President, his retirement is announced, effective Dec. 31, 1931. The following named officers, on completion of their present duties, will sail for the Philippine Department, about April 29: Majors Ralph E. Henry, Fort Thomas, Kentucky; John F. Lieberman, Washington, D. C.; Charles H. Lovewell, Fort Snelling, Minnesota; Robert Malcolm, Fort Moultrie, South Carolina; Irwin B. Smock, Fort Ethan Allen, Vermont, and Capts. Roary A. Murchison, Fort Benning, Georgia, and John R. Wood, Fort Hamilton, New York; Lieut. Col. Morrison C. Stayer, from Fort Benning, Ga., to Carlisle Barracks, Pa.; Major Dennis W. Sullivan, from Carlisle Barracks to Fort Sam Houston, Texas; Capt. Charles S. Sly, relieved from duty in the Hawaiian Department and assigned at Letterman General Hospital, San Francisco; Major Cyrus B. Wood, relieved at Army Medical School, Washington, D. C., and assigned to duty in the Hawaiian Department, about June 18; Major Sidney L. Chappell, on completion of tour of foreign service, and assigned to duty at the Army Medical Center; Major Patrick S. Madigan, relieved at Walter Reed General Hospital, Washington, D. C., and assigned to duty in Balboa Heights, C. Z.; Major Lucius F. Wright, relieved at Fort Williams, Maine, and assigned in the Hawaiian Department; Capt. Jack W. Schwartz, relieved at Fort Slocum, New York, and assigned in the Philippine Department; Major Charles M. O'Connor, Jr., relieved at the general dispensary, Washington, D. C., and assigned to Balboa Heights, C. Z.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Jan. 16, 1932.

Nutritional Anemia in Infancy

Before the war the form of anemia termed chlorosis was common among young women, especially those employed in shops and domestic service, but in consequence of better hygienic conditions this disease has disappeared. Through an investigation for the medical research council, Dr. Helen Mackay has shown that a not dissimilar anemia is prevalent among the infants of London, whether breast or bottle fed, and readily curable by administration of iron (with perhaps minute quantities of copper and manganese). The disease occurs in infants not obviously suffering from any other disease, acute or chronic, though it is frequently associated with bacterial infections and has therefore been termed simple anemia. Other terms that have been used by various writers are nutritional anemia, alimentary anemia of infective origin, cow's milk anemia, chlorotic anemia of infancy, oligosideremia and anemia of premature infants. All these show a similar blood picture, chlorotic in type; i. e., reduction of the hemoglobin percentage, often with little other change. Thus they constitute a single form of anemia. Bunge showed in 1902 that infants are dependent on the store of iron in the liver at birth, since the quantity in milk, human or cow's, is inadequate to provide the amount required for growth. Recent American experimental work goes to show that traces of copper and manganese are important in the cure of the "milk anemia" of young animals. The normal level of hemoglobin at birth appears to be not less than between 120 and 140 per cent; toward the end of the first month it sinks to not less than 99, in the second month to not less than 82, and in the third month to not less than 69. Thereafter the hemoglobin begins to rise, and from the sixth to the twelfth month it is not less than 80.

THE PREVALENCE OF ANEMIA IN INFANCY

Taking hemoglobin 10 per cent below normal as indicating anemia, 45 per cent of breast-fed infants under 12 months of age who were brought to clinics in the east end of London and 51 per cent of those artificially fed were anemic. At the beginning of the second year the figures were 42 and 70 per cent. Much of the anemia was of mild grade and might be considered unimportant had it not been shown to be responsible for much ill health. Nearly every premature infant and most twins acquired anemia, if untreated. In Vienna a worse grade of anemia was found than in London and the disease has also been observed in Berlin and New York. The anemia is equally common in summer and in winter.

ETIOLOGY

Why iron deficiency should occur in full-term infants on breast milk is still a riddle. It may be due to deficient store in the liver or to wasteful utilization, or there may be some controlling factor, comparable with vitamin D in calcium and phosphorus metabolism. Maternal factors may influence the amount of iron stored in the liver. Milk anemia may be produced in the young of experimental animals if the diet of the mother is deficient in iron. But anemia develops in infants whose mothers have had a mixed diet, including meat and green vegetables. The smaller the infant at birth the greater the likelihood that it will develop anemia, for the more rapidly will be the rate of growth relative to the initial weight and the more quickly will the iron store in the liver be exhausted. For the same reason the premature infant is liable to develop anemia. Diseases due to a great variety of causes, from hemorrhage to sepsis, may lower the hemoglobin level and create a call on the iron store of the liver which cannot be met. Anemia is more frequent in infants fed on cow's milk than in the breast fed because the iron intake is smaller and the percentage of retention less. If a diet low in iron, for instance one largely of milk and cereal, is continued after infancy the anemia will increase. Neither sunshine sufficient to tan the skin nor artificial light therapy has any curative or prophylactic value.

SYMPTOMS AND COURSE

Nutritional anemia is insidious in onset, and advice is often sought only for an intercurrent infection. Pink cheeks from an outdoor life or even a flushed skin from being near a fire may completely mask a hemoglobin level of 50 per cent. On the other hand, a child living in a dark basement may look pale though its hemoglobin is 80 per cent. The color of the lips is the best clinical indication, but unless anemia is severe, it is seldom possible to be dogmatic without examination of the blood. Nutritional anemia generally begins in breast-fed infants between the ages of 4 and 7 months. If the infant is weaned and given a mixed diet when between 8 and 9 months of age, improvement begins at about 10 months. In artificially fed infants the onset is earlier. The most important feature of this anemia is susceptibility to infections—colds, otorrhea, bronchitis and enteritis—which tend to become chronic and increase the death rate. The palish, fat infant is liable to pneumonia and a bad subject.

TREATMENT

All artificially fed and many breast-fed infants should be treated prophylactically, especially if the birth weight is low, and the treatment should be continued until the age of 12 months. Iron and ammonium citrate is a good preparation, as it usually contains traces of copper and manganese. It can be given in a sweetened mixture (1½ grains to the drachm) or incorporated in the dried milk used for feeding. The mother is told to begin with a few drops thrice daily, increasing gradually to 1 and then to 1½ drachms or more. For an infant weighing under 10 pounds, 4½ grains of the salt daily is probably sufficient. The mixture can be added to the feed, but it is important to begin the iron treatment gradually; otherwise, colic, vomiting or diarrhea may be produced. The treatment will raise the hemoglobin level of most infants over 5 months of age to the neighborhood of 80 per cent and increase the resistance to disease. Treatment should be begun before the age of 2 months, in premature infants at 4 weeks, and in infants who have lost blood from hemorrhagic disease a few days after the bleeding has ceased. Naturally, caution is required and the treatment should be even more gradual than in ordinary cases. Curative treatment should follow the same lines as prophylaxis, but the doses may be pushed higher, especially in older infants. It is difficult to understand why so many writers say that iron is ineffectual. The explanation of failures may be too short a period of treatment (little effect may be produced for a month or longer), pyogenic infections or alimentary disturbances, or the use of iron salts of low solubility or of absolute chemical purity.

Lectures to Graduates on Sundays

A recent development of postgraduate teaching in London is a course of lectures on Sunday at Charing Cross Hospital. The idea evidently is that Sunday is a convenient day for many busy physicians who would have difficulty in attending on week days. The present course runs from January 17 to March 20. Two lectures are given each Sunday, at 10:45 and 11:45 a. m.

London's Great Nursing Home

The London Clinic and Nursing Home, which will soon be ready to receive patients, will supply a great want. Outside the voluntary hospitals there has been little provision for persons of moderate means requiring medical or surgical treatment of a specialized kind. The home has been planned to supply this want. It is the largest nursing home ever built in this country. It combines the resources of a modern hospital with that of a first class hotel. There are luxury suites for patients who can pay for them, but a large number of the rooms are intended for middle class persons at an inclusive cost of $24 weekly. The only possible extra is the use of the operating theater, and this point remains to be settled. Mr. Ernest Morris, the house governor, who made his reputation in a similar position at the London Hospital, has the desire to be able to present what he describes as "a one-line bill" to those who use the home. There will be accommodations under one roof for thirty-six consulting physicians and surgeons, who will each have his own consulting suite with an entrance in Harley Street, complete equipment for comprehensive examination; and rooms for 214 patients. The site of the area of building is 2 acres and there are ten floors. Vibration and noise are practically eliminated by a special padded foundation, and the corridors, whose total length is a mile, are laid with rubber. Novel features have been introduced for such matters as ventilation. To secure the maximum of fresh air when weather conditions are suitable, the sashes of the patients' windows can be lowered below the sill. Each room has running hot and cold water, bath, lavatory and telephone. All furniture is of walnut or African mahogany and is covered with cellulose, which can easily be washed, avoiding the need of polishing. While scrupulous attention has been given to hygiene, everything has been done to remove as far as possible the atmosphere of a hospital. It is believed that this must have an important psychologic effect on patients. There are no bells or buzzers. A patient wishing to call a nurse presses a button, and a colored light flashes out over the door in the corridor. The home has seven operating theaters, two labor wards on the maternity floor, a special theater for nose and throat patients, and a dental room. The theaters are installed on the eighth floor in order to secure absolute silence; each has a north light. The latest equipment has been installed for research and treatment—radium, x-rays high voltage roentgen therapy, actinotherapy, various forms of baths, and laboratories. Two resident medical officers have been appointed, and there will be a staff of 200 nurses. The thirty porters and attendants are all ex-service men, of whom four have been put through a course of intensive training in operating theater work at the London Hospital. The home will be available for the patients of all physicians, who can look after them and call in the services of a consultant with the same freedom as in any other nursing home; but the use of the operating theaters for major operations will be limited to surgeons on the staff of the great teaching hospitals. The cost of the buildings has been $2,000,000; of the furniture and equipment, $150,000.

The Jews in English Medicine

The prospects of Anglo-Jewry contributing leading scientists in the sphere of medicine, such as have appeared on the continent, were discussed at the annual dinner of the London Jewish Hospital Medical Society. Lord Moynihan, who was the guest of honor, said that the instrusion of the Jew into science had been a matter of great interest to him, for, after all, the striking thing about the Jew was not so much his zest for knowledge as his zeal for righteousness, and when that zeal was carried out, as it had been by many Jews of quite first rank in medicine and surgery, it had given to their practice a kind of intellectual integrity that he thought was quite distinctive. Dr. A. Goodman Levy said that it was remarkable that English Jews had so far failed to attain that degree of fame attained in medicine by their continental brethren. They had no men to compare with such famous names as Cohnheim, Ehrlich, Politzer, Nidal, Wassermann, Israel, Schiff, Haffkine, Besredka, Freud, Landsteiner and Baginsky. Was this due to the lack until recent years of a Jewish hospital in England?

PARIS

(From Our Regular Correspondent)

Jan. 6, 1932.

A New Antidiphtheritic Serum

Dr. Marquézy has presented to the Academy of Medicine a new antidiphtheritic serum, which possesses curative properties superior to those of the existing serums. The new serum is prepared by injecting into horses a mixture of diphtheria toxin and antitoxic serum. The injections are made subcutaneously over a period of several weeks, the antitoxin at first predominating but then gradually diminishing and giving way to the pure toxin. The toxin utilized is derived simultaneously from strain 8 of Park and Williams and from bacilli isolated from the throats of subjects affected with malignant diphtheria. The serum is prepared not solely from the diphtheria toxin but also from living micro-organisms that are injected into the horse along with the toxin. It is therefore both antitoxic and antimicrobic. Before it is used on man, it is deprived of its proteins and then concentrated by means of the physicochemical technic of electro-osmosis. Its injection produces slight or no reactions. It has been employed by Dr. Marquézy in 200 cases of diphtheria observed in the Hôpital Trousseau from April, 1930, to November, 1931. The serum is supplied by the Clin Laboratories, in ampules containing 10 cc. and titrating from 5,000 to 10,000 antidiphtheria units. A cure was effected, in spite of some cardiac disorders and paralysis of the palatine velum, in all but eighteen cases of hypertoxic diphtheria which proved rebellious, no matter how large the doses given or the early nature of the injection, even when the false membranes had disappeared and the appearance of the throat was again normal. It seemed in these unfortunate cases that the toxin was present in enormous quantities from the start and was fixed early.

A Method for Demonstrating the Arterial System

The Academy of Medicine gave a warm reception to Prof. Pedro Belou of Buenos Aires, who came to present a collection of anatomic preparations constituting an important aid for the study of the arterial network of the body. This network is rendered visible in its finest ramifications and in all parts of the body, including the delicate regions of the nervous system and of the organs of sense. Belou employs the Spalteholz method to render the tissues absolutely transparent but injects first into the arterial network a gelatinous solution containing a carefully determined percentage of minium, which penetrates to the precapillary network. The examination of preparations is carried out by means of roentgenography and stereoscopy, which furnishes anatomic plates of a perfection surpassing anything heretofore accomplished. The Academy congratulated Professor Belou, who, moreover, in passing through Bordeaux had been so thoughtful as to present to the Faculté de médecine of that city a bronze plaquette, purchased with funds subscribed by the physicians and students of the Argentine Republic, in memory of Professor Testut, who was a French master of anatomy.

Treatment of Tuberculosis by the Finikoff Method

For several years a trial of the method of Professor Finikoff of Leningrad for the treatment of tuberculosis of the bones and joints has been carried on in the surgical department of Professor Delbet in Paris. The treatment consists in the use of iodine dissolved in cod liver oil and calcium salts. The experiment now appears to be sufficiently conclusive to justify Delbet in making a report to the Academy of Medicine. The statistics cover 160 cases, which produced 126 lasting cures, twenty-four notable ameliorations and only six failures. All these results have been obtained in grave cases in adults, and even in aged men, without any operation and without immobilization of the limbs. The cures have persisted from three to six years since the cessation of treatment in cases in which, for the most part, mutilating operations or permanent ankyloses would have inevitably resulted if the ordinary methods had been followed.

Attitude of Academy Toward Scientific Discoveries

The question of protection for scientific property, which was brought before the Academy of Medicine several months ago, has been considered with great care by a committee composed of Messieurs d'Arsonval, Hanriot, Bezançon, Léon Bernard and Madame Curie. The question involves a plan of protecting the property rights of scientists in their discoveries, just as the property rights of authors in their books have been recognized and protected. The question is not as simple as it appears. The question of property rights to scientific discoveries has only an academic interest until the discovery has had commercial applications. When that time comes, it is usually evident that such applications have as their point of departure not a single discovery of one scientist but the successive researches of many scientists and of different countries. The rights of the scientist would have no legal basis unless the scientist made an official declaration and took patents for each of his discoveries. There is, however, much that is likely to remain forever in the domain of pure science without any commercial application ever developing. In order to safeguard in the future a hypothetic property, a scientist during his whole career would thus be compelled to observe many expensive formalities, which for the most part would be of no intrinsic value. Scientists cannot all afford the luxury of 1,400 patents, as did Edison. The Academy received first a report from Madame Curie, who decided in favor of protecting the rights of the scientists. Mr. Fourneau, who holds patents for his dicovery of stovaine and its derivatives, unexpectedly raised objections that retarded somewhat the work of the committee. The committee, however, set aside the objections of Fourneau as foreign to the subject; for they centered about a vast plan for the reorganization of the work in the laboratory of the faculties of medicine, which he considered entirely too numerous and wished to see centralized in a much smaller number of laboratories with larger endowments. At the session of December 29, the Academy adopted the following resolution: "The Academy declares in favor of the recognition of the property rights of scientists and expresses the desire that the recognition of these rights be speedily proclaimed through the initiative of the public authorities." Recently the general assembly of the British Medical Association rendered just the opposite decision, having declared that it is contrary to the interests of the general public to restrict by any means whatever the use of a remedy or of any instrument or useful instrumentation. The French thesis, however, is that the levying of this tribute should be made on the commercial enterprises that make fortunes out of the research of scientists.

The Centenary of Félix Guyon

The hundredth anniversary of the birth of the French urologist Félix Guyon was commemorated by special ceremonies, held at the Academy of Medicine, of which Guyon was once president, and at the Hôpital Necker, where he created the first chair of clinical instruction in urology and where he taught for nearly forty years. Professor Legueu, who was a favorite pupil of Guyon and who now occupies Guyon's chair, delivered a eulogy on his teacher and traced the various stages in his career. In the audience were teachers of the Faculté de médecine, representatives of the university, the ministry of public instruction and ministry of public health, the director of the Assistance publique in Paris, and a large group of urologists who came from Paris, the provinces and foreign countries. Professor Hogge of Liége then spoke in the name of the foreign pupils of Guyon. Short addresses were delivered also by Professor Pousson of Bordeaux, Dr. Michon, Dr. Pasteau, Dr. Mirallié of Nantes, where Guyon began his studies, and Professor

Balthazard, dean of the Faculté de médecine. On this occasion the minister conferred on Professor Hogge the insignia of an officer of the Legion of Honor.

Death of Professor Rémond

The death of Professor Rémond of Toulouse, at the age of 68, is announced. Professor Rémond was born at Metz and studied medicine in Nancy, and later in Paris, where he became one of the most brilliant pupils of Professor Debove. He was appointed associate professor, and later professor, of the clinical aspects of mental diseases, at the Faculté de médecine in Toulouse. He was the author of many works dealing with his specialty. He published a "Manual of Mental Diseases," which is a classic in France, and also a French translation of the large treatise of Kraft-Ebing.

ITALY

(From Our Regular Correspondent)

Dec. 15, 1931.

Congress of Internal Medicine

The Società italiana di medicina interna held recently its thirty-seventh national congress in Bari. Prof. Francesco Galdi, director of the Clinica medica of the Università Adriatica, was chairman of the committee on organization.

DIABETES

Prof. Luigi Zoia of Milan, who presented a paper on diabetes, first considered the meaning of the regulation of exchange, regulatory centers, harmonic equilibrium and vegetative tonus. The endocrine glands have a functional tonus independent of one another; yet the resultant of their action is determined by their mutual influence on one another. This mutual influence is observable also with reference to the suprarenal glands and the islands of Langerhans, which function correlatively but each one according to its own proper tonus, which clearly appears especially under pathologic conditions. The particular chemicophysical constitution of the protoplasm of every individual determines the tonus of the neurovegetative system and of the endocrine glands. The most important examination in the presence of glycosuria is the determination of the blood sugar. There may be glycosuria with normal blood sugar (renal diabetes of Klemperer) or glycosuria with hyperglycemia, the most common example of which is pancreatic diabetes. These two forms are frankly distinct in their clinical course and their indicated treatment. In glycosuria with normal blood sugar, no notable alimentary restrictions are imposed nor is insulin treatment employed. The treatment of glycosuria with hyperglycemia is based, however, on the restricted diet and on the administration of insulin. In glycosuria with normal blood sugar not only is the glycemic curve with reference to sugar normal but also the Delpish and Hasenhörl, the Staub and the Radoslaw tests are normal. The renal threshold for sugar depends on the peculiar qualities of the individual. It is lower in persons with an increased vagal tonus but higher in persons with a high tonus of the sympathetic nerve. It has not yet been ascertained whether in the blood and in the organism in general dextrose exists also in the form of active dextrose. It probably exists also in a hydrolyzable form and there are doubtless saccharoids. These bodies deserve to be studied later more carefully. The glycemic curve with reference to dextrose throws great light on the types of diabetes. It is not clear whether the reason for the condition is to be sought in a demobilization of the dextrose of the liver due to a reflex action of the digestive tract or to the effects of epinephrine. It has, however, been shown that it is possibly due to the absorption of dextrose ingested by mouth. In diabetic patients the elimination of bilinogen is below normal and is not in relation to a torpid hemoglobin exchange. The treatment of choice in diabetes mellitus is a combination of a restricted diet and insulin therapy. The diet should resemble as far as possible the diet that would be physiologic for a given patient if he were not diabetic. If, on the prescribed diet, the patient eliminates sugar, a further reduction of the carbohydrates should not be resorted to, as this might lead to an acidosis or to disturbances of the kidneys, the liver or the heart, owing to the consequently necessary increase of fats and proteins; but one must modify the defective assimilation of carbohydrates by means of insulin. In order to prevent the appearance of ketone bodies, the quantity of protein substances ingested daily should not exceed 1 Gm. for each kilogram of body weight of the patient. The appearance of symptoms of hypoglycemia is due to an inaccurate prescription as to diet and insulin doses and should be corrected at once. The surgical treatment of diabetes has not given thus far very practical results. In the discussion that followed, Ascoli of Palermo remarked that the discovery of insulin has not solved the problem of diabetes, which, moreover, does not concern solely the pancreas. He recalled the pluriglandular conception and the nervous theory, held in Italy by Cesa-Bianchi. It is the task of the modern physician to discover diabetes before glycosuria manifests itself, by means of the sugar content of the blood. For the treatment it would be well to establish ambulatoriums for antidiabetic treatment. Condorelli of Naples reported on his experimental researches on dextrose excreted by the liver in diabetic patients as a result of nervous reflexes. D'Amato of Naples by clinical researches was able to show that by means of suitable modification of diet one can save the loss of nitrogen in emaciated diabetic patients. He thinks that also in grave diabetes loss of nitrogen can be prevented. Cesa-Bianchi of Milan brought out that in the genesis of hyperglycemic diabetes other neuro-endocrine syndromes besides that affecting the pancreas are involved. He thinks that the liver has been neglected and that possibly some day the classic conception of Claude Bernard will be revived. Ferranini of Catania emphasized the need of seeking other therapeutic aids, in order to help the diabetic; for example, he believes in the usefulness of sulphurous waters. After Professor Frugoni, clinician of Rome, had surveyed the discussion and pointed out that, although there are still obscure points, much has been accomplished in the study of diabetes, Professor Zoia responded to the questioners.

ORIGIN AND CLINICAL EVOLUTION OF TUBERCULOSIS

The second official topic, "Mode of Origin and Clinical Evolution of Pulmonary Tuberculosis," was presented by Prof. Carlo Gamna of Siena and Professor Omodei-Zorini of Rome. Gamna defined the form and the significance of the first lesions that follow the primary infection and illustrated in turn the various modes of evolution of the postprimary clinical manifestations, particularly isolated tuberculosis of the apex, which, in the nosographic sense, presents a rather peculiar and characteristic aspect; then the nonapical circumscribed chronic types, which represent, to a great extent, chronic evolutive stages of early infiltrates or hematogenopulmonary metastases of slow evolution. Gamna then described the infiltrated lesions, which are usually extra-apical, of which the early subclavicular infiltrate of Assmann and Redeker is a type. He expounded the pathogenic and clinical problems connected herewith, on account of which the whole study of phthisiogenesis is being revamped on a modern basis. He took up then the intrapulmonary diffusion of the disease and finally considered the conditions and factors that influence the development of pulmonary tuberculosis —the organic constitution, the age, the functions of maternity, diabetes, cancer, and the like.

Professor Omodei-Zorini presented the official paper on the second half of the subject. The speaker confirmed, on the basis of experimental, morphologic data and statistics collected in recent decades, the rare pathogenic action of the bovine bacillus on the human lung, the old hypothesis of Behring notwithstanding. He emphasized that no practical importance attaches to bacilli of the avian type or of cold-blooded animals, or to saprophytic acid-resistant bacilli. The speaker gave then a critical résumé of the theory of the granular and filtrable types of virus, reviewing the objections to the filtrability of the bacillus. Omodei-Zorini opposed the theory of the transplacental passage of the filtrable virus and of its pathogenicity for the organism of the new-born and of the nursling. The speaker assigned the greatest importance to extra-uterine contagion, citing, among the more common sources of infection, bacilliferous dust, the direct inhalation of bacillary material and its penetration into the bronchioles and into the alveoli of children during infancy and early childhood. He ascribes the highest defensive value to the upper air passages, which may, however, be disturbed by inflammatory processes and exanthematic infectious diseases. In such manner there occurs (at least once in the lifetime of most persons) the intrapulmonary penetration of bacillary material sufficient to cause a circumscribed tuberculous process.

The discussion that followed was participated in by Professor Giuffrè of Palermo, who emphasized that radiologic research on pulmonary tuberculosis should remain under the control of the clinic and should not tend to become a separate branch. Terni of Naples called attention to the importance of the researches of Ninni and of Sanarelli on the tuberculous ultravirus. Prof. Edoardo Maragliano, senator, delivered a lecture on the scientific bases of preventive antituberculosis vaccination in man.

RELATIONS BETWEEN MALARIA AND TUBERCULOSIS

The official speaker for the fourth topic, "The Relations Between Malaria and Tuberculosis," was Dr. De Bernardinis, lieutenant colonel of the army medical corps, who pointed out that of the arguments adduced in favor of the antagonism between malaria and tuberculosis some have only historical interest. No practical value attaches to the announcements preceding the discoveries of Laveran and Koch in regard to the specific agents of the two infections. Tuberculosis is variously diffused throughout the world but in general, to a greater rather than to a less extent, in the malarial zones. In Europe the lowest mortality rates from tuberculosis are reported from countries where there is little malaria, such as Denmark and England, while the highest mortality rates from tuberculosis are recorded in countries in which malaria infection abounds, such as Bulgaria and Greece. In the Italian army, of the men enlisted from the department of Cagliari (Sardinia), 11.57 per thousand were eliminated in one year owing to various types of tuberculosis or pretuberculous conditions, whereas in the department of Turin, where there is no malaria, the proportion was only 4.53 per thousand. The speaker thinks it would be well to extend his researches also to the relations between malaria and tuberculosis, on the one hand, and other concomitant diseases, such as syphilis, diabetes, leukemia, cancer and typhoid. An inquiry carried out in the Italian military hospitals showed that, in 135 out of 680 cases of tuberculous lesions of the lungs in soldiers affected with malaria, it was due solely to the malaria that specific signs of tuberculosis were brought out in a number of robust and otherwise healthy subjects, which had not been previously revealed; hence, the speaker regarded as proved the thesis that malaria may assume the rôle of revealer of pulmonary tuberculosis.

In the discussion, Professor Galdi of Bari stated that he had observed that in Sardinia, where malaria is widespread, there is also a high percentage of tuberculosis. Pozzilli of Rome proposed the creation in the military sanatoriums of a department for tuberculous patients in which special emphasis could be placed, in the taking of the personal history, on the possible existence of a previous malaria. De Bernardinis responded to all questioners. Rome was selected as the meeting place for the next congress.

BERLIN

(From Our Regular Correspondent)

Jan. 5, 1932.

Proposed Reforms in the Medical Curriculum

The medical curriculum of Germany continues to be a subject of considerable controversy. The aims sought are a more suitable presentation of instruction in science, a better practical training, and, at the same time, a certain checking of the afflux of medical students. The deliberations in the federal ministry of the interior, in which representatives of the provincial governments, the federations of the German faculties of medicine, the medical profession, and the medical student body, participated, concerned chiefly the preclinical years. The reforms in the clinical studies will be considered later in connection with the introduction of the new provisions with regard to the premedical examination. In the recent deliberations the central prevailing idea was that ways and means must be found to exclude as early as possible unsuitable elements from the study of medicine. As a means to that end, it was suggested that the premedical examination be made up of two parts, one dealing with the natural sciences, in the narrower sense, and one with anatomy and physiology. Likewise, the rules governing the passing of examinations, particularly as regards opportunities for repetition, should be made more rigid. Whether or not it will be necessary to lengthen the number of years required in residence is not yet certain. New provisions affecting the premedical examination are being worked out in the federal ministry of the interior. These provisions may go into effect at the beginning of the next summer semester.

Professor von Noorden's Golden Jubilee

Prof. Carl von Noorden of Vienna, well known as a clinician and for his work on metabolism, celebrated, December 28, the fiftieth anniversary of his graduation as a doctor of medicine. Von Noorden, a pupil of the physiologist Viktor Hensen in Kiel and of the clinicians Riegel in Giessen and Karl Gerhardt in Berlin, developed a great activity as a scientific investigator and teacher, while serving as an assistant physician at the Charité Hospital in Berlin. In connection with many different diseases he stimulated his pupils to make researches on metabolism. In his large work "Pathologie des Stoffwechsels," published later, he made use of a large number of researches that were carried out in his department in Berlin. In 1894, von Noorden removed to Frankfort-on-Main, as the head physician of the department of internal medicine in the Municipal Hospital. In 1906, he became the successor of Nothnagel in Vienna, but returned in 1913 to Frankfort, where he received an appointment as an honorary ordinarius. Since 1929, von Noorden has served as consultant in diseases of metabolism at the municipal hospitals and as the director of a special department for diseases characterized by a disturbance of sugar metabolism. His work on diabetes, which first appeared a generation ago and has passed through many editions, has been regarded in Germany, as well as in foreign countries, as a fundamental treatise on the subject. Also his work "Klinik der Darmkrankheiten" has received great attention. Von Noorden has an international reputation in the field of diseases of metabolism, particularly diabetes.

Professor Moritz Honored

Likewise, Prof. Friedrich Moritz, who was, for many years, ordinarius for internal medicine at the University of Cologne, celebrated, December 10, his seventieth birthday. Moritz has been trail blazer in many fields of internal medicine. He is the inventor of the orthodiagraph, which enables the examiner to record without perspective errors the true form and size of roentgen pictures thrown on a screen. This invention has been the point of departure of numerous researches on heart diagnosis. In collaboration with his pupil Tabora, he proposed a much used method for the determination of venous pressure. He prepared for Krehl and Marchand's "Handbook of General Pathology" the chapter on the dynamics of the heart and valvular defects. With the aid of Moritz's circulation model, the most important manifestations of the blood circulation can be clearly demonstrated. Toward the end of the last century Moritz emphasized the need of better instruction in dietetics. His book "Grundzüge der Krankenernährung" dates back to this period. The world of athletics and sport owes to Moritz and his pupils many researches carried out at a time when it was not a common thing to consider the influence of physical exercise on the body. In 1896, Moritz published a critical article on the licensing of specialists, in which, at that early day, he warned against the dangers resulting from overspecialization. In a brochure on "Psychographie des Mediziners und des Geisteswissenschaftlers," he endeavored to describe the aptitudes possessed by the true medical man. His scientific career led him from Munich, where he became a professor in 1890 and, as extraordinarius, conducted the policlinic in the Reisingerianum, by way of Greifswald, Giessen and Strasbourg, in 1911, to Cologne.

Death of Prof. Eduard Kaufmann

The death of Prof. Eduard Kaufmann, formerly ordinarius in pathology at the University of Göttingen, at the age of 72, is announced. Professor Kaufmann entered on his university career at the University of Breslau, in 1888. He later accepted a call to Basel, whence he removed, in 1907, to Göttingen. One important publication deals with his researches on tumors of the prostate. His chief work, however, is his textbook on special pathologic anatomy, which passed through ten editions and has been translated into five languages. Aside from the large handbooks on the subject, this work is the most comprehensive in the German literature. Herein an eminent investigator surveys his entire field of research. Kaufmann considered this publication as the best expression of his life work.

RIO DE JANEIRO

(From Our Regular Correspondent)

Jan. 15, 1932.

Therapeutic Pneumopericardium in Carditis with Effusion

Addressing recently the Sociedade de Medicina e Cirurgia of Rio de Janeiro, Dr. N. Romano of Buenos Aires considered the favorable effects of therapeutic pneumopericardium on carditis with large effusions. The speaker has resorted to this treatment with good results for ten years. Therapeutic pneumopericardium prevents the formation of cardiac adhesions and favors the action of the heart. The necessary instruments to perform the operation are a needle 7 cm. long, a syringe of 20 cc. capacity with which the fluid of the effusion is removed, and a simple apparatus for production of pneumothorax. The amount of fluid removed should be replaced by the same amount of injected air, without exceeding, however, 400 cc. The point at which the puncture should be made is previously determined according to the amount of the effusion as shown by both the clinical and the roentgen examination. Whenever the operation is made in adults the speaker performs the puncture, as a rule, in either the fifth intercostal or the left parasternal space. When the operation is made in children, he performs the puncture according to Marfan's method at the subxiphoid point.

Transmission of Rat-Bite Fever to Guinea-Pigs

Dr. E. de Araujo, head of the laboratories of the Faculty of Medicine of Bahia and director of the Instituto Oswaldo Cruz, published recently an article on experimental diagnosis of rat-bite fever. He succeeded in transmitting the infection from a patient, aged 1 year, with a clinical diagnosis of rat-bite fever, to guinea-pigs, by means of the following experiments: Mice, whose blood had been previously examined to rule out the presence of spirilla, were inoculated with blood taken from the patient during the febrile period of the disease. Blood passages were subsequently made into guinea-pigs, one of which presented the picture of experimental rat-bite fever (falling of the hair and loss of weight). The animal died one month later. A motile micro-organism, morphologically similar to that described by Carter in 1887 under the name of Spirillum minus, was isolated from the blood of all guinea-pigs that were inoculated. The speaker said that Bergey classed Spirillum minus as a genus of Borrelia belonging to the order of Spirochaetaceae. Weyton and also Bergey and his collaborators identified the micro-organism as Borrelia muris, a special variety of Borrelia. Lehmann and Neumann classified the genus as Spirilla. During the speaker's experiments the intratesticular inoculation into the guinea-pigs was followed by an inflammatory reaction in the testicles. The fluid obtained by a puncture of the swollen testicles contained a large number of spirochetes and the examination of the blood for the micro-organism gave positive results. The speaker believes that the bacteria isolated in his experiments is the same found by several authors in cases of rat-bite fever, although the strain in his cases did not cause death of the infected animals. The speaker reviewed the seven cases of rat-bite fever previously reported in Brazil: C. Chagas and Gomes de Faria reported one case each, in Rio de Janeiro, in 1915 and in Curityba in 1919, respectively; H. C. de Souza Araujo and C. Pinto reported one case in Curityba in 1919, and Gomes de Faría and A. da Matta reported two cases each in Rio de Janeiro in 1915 and in Manáos in 1920, respectively. In all the seven cases the diagnosis was made by Fontana's method. Spirochetes were isolated from the urine sediment in six cases and from the fluid obtained by puncture of a lymph gland in one case. The speaker's case is the eighth case of rat-bite fever reported in Brazil and the first one in which the experimental inoculation gave positive results.

Clinical Diagnosis of Acidosis

Dr. T. de Azevedo of Bahia recently published an article in which he studies the possibility of making a clinical diagnosis of acidosis by the symptoms described by several authors, especially Prof. Annes Dias of Porto Alegre. The presence of two symptoms (saccharomycosis buccalis and frequent sobbing) is a constant characteristic in the several clinical forms of acidosis which Annes Dias differentiated into acidosis of respiratory, nervous, siderant, cardiac, digestive and peritoneal types. The speaker reported a case in a child, aged 3, in whom the clinical diagnosis was made without examining the patient, who was at a great distance from the city. The clinical diagnosis was made through the description of the symptoms as given by the patient's father, who said that the patient had painful and distended abdomen and frequent sobbing and yawning. The administration of sodium bicarbonate and sodium citrate by oral and rectal routes was followed by the recovery of the patient within forty-eight hours.

Marriages

Charan Singh Sandhu, Amrit Sar, Punjab, India, to Miss Helen Olive Gregg of Cleveland, in Newport, Ky., February 3.

Haldor Barnes, Whitehall, Mich., to Miss Phyllis Creig of New Plymouth, New Zealand, in Detroit, January 9.

Percy Gatling Hamlin, Philadelphia, to Miss Elizabeth Beverly Scott of Williamsburg, Va., February 6.

Deaths

Verner Simpson Gaggin, Pittsburgh; New York Homeopathic Medical College and Hospital, 1895; member of the Medical Society of the State of Pennsylvania; served during the World War; on the staff of the Homeopathic Medical and Surgical Hospital; aged 62; died, January 22, of coronary sclerosis.

Thomas Warren De Hass, Indianapolis; Medical College of Ohio, Cincinnati, 1883; Bellevue Hospital Medical College, New York, 1888; formerly assistant professor of medicine, Indiana University School of Medicine; for many years on the staff of the City Hospital; aged 75; died, January 25, of heart disease.

David Israel Frankel ⊕ Boston; Boston University School of Medicine, 1916; instructor in clinical surgery and tropical diseases at his alma mater; fellow of the American College of Surgeons; assistant visiting surgeon to the Massachusetts Memorial Hospitals; aged 47; died, January 23, of heart disease.

William Edward Campbell, Sr., Atlanta, Ga.; Medical Department of the University of the City of New York, 1888; member of the American Laryngological, Rhinological and Otological Society and fellow of the American College of Surgeons; aged 66; died, January 7, of myocarditis.

Giles Burneston Cook, Front Royal, Va.; Columbian University Medical Department, Washington, D. C., 1903; member of the Medical Society of Virginia; served during the World War; aged 54; died, January 2, in the Walter Reed General Hospital, Washington, D. C., of adenocarcinoma.

David Edwin McMaster, Tennille, Ga.; University of Georgia Medical Department, Augusta, 1886; member of the Medical Association of Georgia; past president of the Washington County Medical Society; aged 71; died, January 8, of heart disease, nephritis and arteriosclerosis.

Clamor Henry Magna, Jr. ⊕ Brooklyn; Columbia University College of Physicians and Surgeons, New York, 1918; superintendent of the Kings County Hospital; aged 36; was found dead, January 27, in a hotel at Portsmouth, N. H., of self-inflicted incised wounds of the wrists.

John Andrew Morrisey, Newark, N. Y.; University of Michigan Medical School, Ann Arbor, 1895; member of the Medical Society of the State of New York; aged 64; died, January 8, in the Clifton Springs (N. Y.) Sanitarium, following an *operation for carcinoma of the colon.*

Patrick K. Mullany, Gary, Ind.; Schools of Surgery, Royal College of Surgeons in Ireland, Dublin, Ireland, 1906; member of the Indiana State Medical Association; aged 50; died, January 10, in the Mercy Hospital, of acute appendicitis and streptococcic peritonitis.

William Lewis Rhonehouse, Toledo, Ohio; University of Michigan Homeopathic Medical School, Ann Arbor, 1910; member of the board of education of Maumee; aged 45; was killed, January 6, when the automobile in which he was driving was struck by an interurban car.

Crowell Clarinton Hall, Hartford, Conn.; Johns Hopkins University School of Medicine, Baltimore, 1910; member of the Connecticut State Medical Society; served during the World War; aged 47; died, January 25, of meningitis following a sinus infection.

Sherman Russell Lancaster, Cambridge, Mass.; Medical Department of the University of the City of New York, 1887; member of the Massachusetts Medical Society; aged 70; died, January 26, in the Westboro (Mass.) State Hospital, of chronic myocarditis.

Alfred Herman Duerschner, Ray Brook, N. Y.; Albany Medical College, 1920; member of the Medical Society of the State of New York; aged 36; on the staff of the New York State Hospital, where he died, January 22, of pulmonary tuberculosis.

Decatur Poindexter Butler, McCall Creek, Miss.; Louisville (Ky.) Medical College, 1897; member of the Mississippi State Medical Association; state senator; aged 61; died, January 13, of injuries received in an automobile accident.

Henry J. Herman, Webster, S. D.; Medical College of Ohio, Cincinnati, 1891, member of the South Dakota State Medical Association; county health officer; aged 63; died, Dec. 30, 1931, in St. Luke's Hospital, Aberdeen.

Delbert Chester Fox, Kenton, Ohio; Starling-Ohio Medical College, Columbus, 1909; member of the Ohio State Medical Association; aged 48; died, January 18, of a cerebral hemorrhage, following an automobile accident.

Forbes Elliott Godfrey, Mimico, Ont., Canada; University of Toronto Faculty of Medicine, 1889; formerly minister of health and labor in the Ontario provincial legislature; aged 63; died, January 6, of pernicious anemia.

Frederick Charles Low, High Bridge, N. J.; University of Pennsylvania School of Medicine, Philadelphia, 1894; member of the Medical Society of New Jersey; aged 64; died, February 2, of poison, self-administered.

Walter E. Edwards ⊕ Polk City, Fla.; Baltimore Medical College, 1896; aged 63; died, January 8, in the Morrell Memorial Hospital, Lakeland, of hypostatic pneumonia, cerebral hemorrhage and arteriosclerosis.

Thorvald Holen, Minneapolis; Medical Department of Hamline University, Minneapolis, 1902; member of the Minnesota State Medical Association; aged 57; died, January 12, of coronary arteriosclerosis.

Looney McCormack, Harrisburg, Ill.; St. Louis College of Physicians and Surgeons, 1898; member of the Illinois State Medical Society; aged 66; died, January 6, in the Lightner Hospital, of appendicitis.

Daniel Tillett Henderson, Macon, Ga.; Atlanta Medical College, 1914; member of the Medical Association of Georgia; on the staff of the Macon Hospital; aged 44; died, Dec. 31, 1931, of angina pectoris.

Luke Pryor Allison, Brownwood, Texas; Beaumont Hospital Medical College, St. Louis, 1893; fellow of the American College of Surgeons; aged 60; died, January 7, of thrombosis of the mesenteric vein.

John Freeland, White Sulphur Springs, W. Va.; Bellevue Hospital Medical College, New York, 1894; aged 58; died, January 19, in the Johns Hopkins Hospital, Baltimore, of acute dilatation of the heart.

John Edgar Leemon, Middletown, N. Y.; Medical Department of the University of the City of New York, 1894; veteran of the Spanish-American War; aged 60; died, January 7, of cerebral hemorrhage.

Sylvan McElroy ⊕ Orlando, Fla.; University of Maryland School of Medicine, Baltimore, 1907; city health officer; on the staff of the Orange General Hospital; aged 48; died suddenly, January 1.

James Edwin Hair, Bridgeport, Conn.; Kansas City College of Medicine and Surgery, 1917; aged 68; died, Dec. 24, 1931, in the Bridgeport Hospital, of arteriosclerotic hypertensive heart disease.

James Gettus McCue ⊕ Silver City, Iowa; Louisville (Ky.) Medical College, 1891; past president and secretary of the Mills County Medical Society; aged 63; died, January 7, of heart disease.

George Windsor Hatch, Wilton, N. H.; Dartmouth Medical School, Hanover, 1880; member of the New Hampshire Medical Society; aged 76; died, January 10, of cerebral hemorrhage.

William J. McDowell, Scottdale, Pa.; Jefferson Medical College of Philadelphia, 1884; member of the Medical Society of the State of Pennsylvania; aged 71; died, Oct. 14, 1931, of myocarditis.

Freeman J. Scott, Rock Falls, Ill.; Hahnemann Medical College and Hospital, Chicago, 1888; health officer of Rock Falls; formerly member of the school board; aged 65; died, January 5.

George Samuel Brown, Edina, Mo.; St. Louis College of Physicians and Surgeons, 1892; member of the Missouri State Medical Association; aged 62; died, January 13, of arteriosclerosis.

John Halliday Gillespie, Flushing, N. Y.; McGill University Faculty of Medicine, Montreal, Que., Canada, 1911; aged 49; died, January 11, in St. John's Hospital, Long Island City.

Octavius Thorndike Howe, Boston; Harvard University Medical School, Boston, 1877; member of the Massachusetts Medical Society; aged 80; died, Dec. 27, 1931, of heart disease.

Charles W. Head, Windsor, Mo.; Missouri Medical College, St. Louis, 1877; member of the Missouri State Medical Association; aged 76; died, January 11, of cerebral hemorrhage.

Joseph Armand Bedard ⊕ Lynn, Mass.; Laval University Faculty of Medicine, Quebec, Que., 1890; on the staff of the Lynn Hospital; aged 65; died, January 26, of coronary sclerosis.

William T. Gillespie, Boaz, Ala.; Chattanooga Medical College, 1898; aged 67; died, January 13, in a hospital at Gadsden, following an operation for intestinal adhesions.

James Benjamin Abbitt, Norfolk, Va.; Medical College of Virginia, Richmond, 1901; member of the Medical Society of Virginia; aged 60; died, January 12, of heart disease.

Daniel J. MacIsaac, Chicago; Chicago Medical School, 1920; aged 42; died, January 1, in St. Luke's Hospital, of injuries received when he was struck by an automobile.

Clarence Province ⊕ Franklin, Ind.; Jefferson Medical College of Philadelphia, 1895; formerly member of the school board; aged 60; died, January 22, of heart disease.

Clark S. Fortney, Hundred, W. Va.; Maryland Medical College, Baltimore, 1905; member of the West Virginia State Medical Association; aged 62; died, Dec. 15, 1931.

Eugene Chellis Glover, Boston; Harvard University Medical School, Boston, 1928; aged 28; died, January 22, in the Boston City Hospital, of cyanogen poisoning.

Dudley Watson Day, Rockford, Ill.; Rush Medical College, Chicago, 1907; on the staff of the Rockford Hospital; aged 49; died, January 15, of heart disease.

John Charles McMichael, Windermere, Fla.; Medical Department of Ohio Wesleyan University, Cleveland, 1895; aged 66; died, January 20, of heart disease.

Edgar Nelson McGiffert ⊕ Duluth, Minn.; College of Physicians and Surgeons in the City of New York, 1886; aged 70; died, January 10, of coronary occlusion.

Robert La Fayette Neal, Hapeville, Ga.; Southern Medical College, Atlanta, 1886; aged 68; died, January 1, of myocarditis, endocarditis and cardiac asthma.

Thomas McG. Smith, Eutaw, Ala.; Kentucky School of Medicine, Louisville, 1907; aged 47; died, Dec. 29, 1931, of a self-inflicted bullet wound of the head.

Arthur Burtis Allen, Buffalo; State University of Iowa College of Medicine, Iowa City, 1886; aged 70; died, January 14, of carcinoma of the stomach.

Denison J. Higley, Grandview, Iowa; University of Michigan Medical School, Ann Arbor, 1882; aged 78; died, Nov. 24, 1931, of bronchopneumonia.

Frank Seymour Love, Newton, Texas; Jefferson Medical College of Philadelphia, 1887; aged 65; died, Dec. 27, 1931, of nephritis and heart disease.

Marcellus L. Halbert, Cincinnatus, N. Y.; Geneva (N. Y.) Medical College, 1872; aged 82; died, January 19, of myocarditis and acute nephritis.

Henry T. Trumbauer, Coopersburg, Pa.; Jefferson Medical College of Philadelphia, 1863; aged 93; died, January 2, of capillary bronchitis.

Arthur Benjamin Cullum ⊕ Chanute, Kan.; Kansas City Homeopathic Medical College, 1897; aged 67; died, January 24, of angina pectoris.

Allen P. McRee, Cottagegrove, Tenn. (licensed, Tennessee, 1889); aged 68; died, January 1, in the Wiggins Clinic, Paris, of heart disease.

Ethel Lynn Gray, Portland, Ore.; University of Oregon Medical School, Portland, 1899; aged 64; died, January 12, of heart disease.

Faustina Bush, Norwich, Vt.; College of Physicians and Surgeons, Boston, 1891; aged 76; died, January 5, of cerebral hemorrhage.

Stephen Edwin Cone ⊕ Cincinnati; Miami Medical College, Cincinnati, 1896; aged 64; died, January 19, of coronary thrombosis.

David F. Ingles, Wichita, Kan.; Medical College of Ohio, Cincinnati, 1881; aged 74; died, January 28, of hypostatic pneumonia.

Alan Gardner, Los Angeles; McGill University Faculty of Medicine, Montreal, Que., Canada, 1878; aged 75; died, Nov. 20, 1931.

Richard E. Clevenger, Lima, Ohio; Miami Medical College, Cincinnati, 1886; aged 73; died, January 16, of heart disease.

S. B. Neilson, Ladonia, Texas; Missouri Medical College, St. Louis, 1882; aged 78; died, Dec. 14, 1931, of pneumonia.

Eugenia Adelaide Hurd, Los Gatos, Calif.; Cooper Medical College, San Francisco, 1894; aged 85; died, Nov. 21, 1931.

Joseph R. Walker, Rogersville, Tenn.; Jefferson Medical College of Philadelphia, 1854; aged 100; died, Dec. 18, 1931.

Emanuel Cross Nolan, Mount Pulaski, Ill.; Rush Medical College, Chicago, 1878; aged 78; died, January 9.

Orin William Joslin, Banning, Calif.; Milwaukee Medical College, 1903; aged 56; died, Nov. 19, 1931.

Bureau of Investigation

RENESOL

Phenobarbital (Luminal) Sold Under Several Fancy Names as a Mail-Order Cure for Epilepsy

NUROSOL LABORATORIES, INC., 509 Fifth Avenue, New York City; sold "Nurosol" for epilepsy.

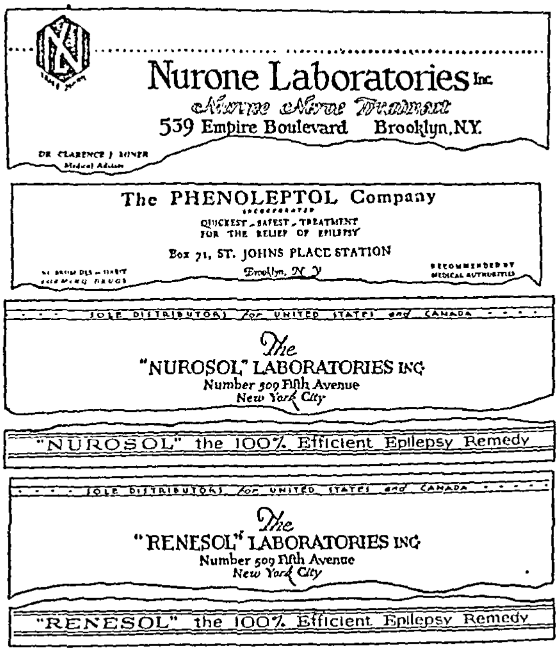
RENESOL LABORATORIES, INC., 509 Fifth Avenue, New York City, and 539 Empire Boulevard, Brooklyn; sells "Renesol" for epilepsy.

NURONE LABORATORIES, INC., 539 Empire Boulevard, Brooklyn; sells "Nurone" for epilepsy.

EDUCATIONAL DIVISION, 509 Fifth Avenue, New York City; sells "Renesol" for epilepsy.

VITOSOL CORPORATION, 489 Fifth Avenue, New York City; sells "Vitosol" for epilepsy.

PHENOLEPTOL COMPANY, 539 Empire Boulevard, Brooklyn, and Post Office Box at St. John's Place Station, Brooklyn; sells "Phenoleptol" for epilepsy.



Nurone Laboratories Inc.
Nurone Nerve Treatment
539 Empire Boulevard Brooklyn, N.Y.
Dr. Clarence J. Miner
Medical Adviser

The PHENOLEPTOL Company
Incorporated
QUICKEST – SAFEST – TREATMENT
FOR THE RELIEF OF EPILEPSY
Box 71, ST. JOHNS PLACE STATION
Brooklyn, N. Y.
No bromides – habit forming drugs
Recommended by medical authorities

SOLE DISTRIBUTORS for UNITED STATES and CANADA
The
"NUROSOL" LABORATORIES INC
Number 509 Fifth Avenue
New York City

"NUROSOL" the 100% Efficient Epilepsy Remedy

SOLE DISTRIBUTORS for UNITED STATES and CANADA
The
"RENESOL" LABORATORIES INC
Number 509 Fifth Avenue
New York City

"RENESOL" the 100% Efficient Epilepsy Remedy

Some of the numerous letter-heads used by Goldblatt and Goldberg in exploiting the epileptic. There were no laboratories. The business consisted in selling phenobarbital (luminal) at an exorbitant price under such names as "Phenoleptol," "Nurosol," "Renesol," "Nurone," etc.

The above are various trade names used by Charles Goldblatt and Maurice E. Goldberg in selling phenobarbital (luminal) at an exorbitant price and under various trade-marked names as a "cure" for epilepsy. Of course, the Messrs. Goldblatt and Goldberg are much too shrewd to declare frankly that their many-named nostrum is a "cure," but the whole trend of their advertising is such as to lead the public to believe that they have a cure.

Investigators report that the various named "laboratories" here listed are fakes; there are no laboratories. The address at 509 Fifth Avenue ("Nurosol Laboratories," now known as the "Renesol Laboratories") is merely a rented desk space from a real-estate brokerage concern that sublets desk space and mailing privileges to various concerns. The Vitosol Corporation is also a rented space in Suite 406, 489 Fifth Avenue, for which, according to a report of the Department of Health of the City of New York, Charles Goldblatt pays $5 a month.

Goldblatt and Goldberg, so far as investigation has been able to determine, have no chemical, pharmaceutical or medical knowledge. They certainly are not physicians and they are shrewd enough not to sell their stuff within the City of New

York, or they undoubtedly would be promptly arrested by the efficient officials of that city for violation of the law against unqualified practice.

It appears that Goldblatt and Goldberg hire a man who is legally licensed to call himself M.D., one Clarence J. Miner. According to our records, Dr. Miner was born in 1864, holds a diploma from the University of Minnesota College of Medicine and Surgery for 1891, and is licensed in Montana, Illinois, Kansas and New York. Miner was, for a while, an assistant surgeon at the Marion National Sanatorium in Indiana, but resigned in February, 1928. Miner's name appears frankly on the stationery of the Nurone Laboratories, Inc., as "Medical Adviser." In some of the advertising come-on material sent out by Goldblatt-Goldberg in connection with Renesol, there is a facsimile letter on Miner's personal stationery, puffing Renesol. Naturally, there is nothing to indicate to the public that receives this that Miner is an employee of the people that put out the stuff that he puffs.

Another testimonial for Renesol, used as part of the come-on literature by Goldblatt-Goldberg, is a letter on the stationery of one "Dr." Edwin F. Bowers, described on the stationery in which this puff appears as a "Specialist in Gland and Psychic Disorders," and who describes his methods as "Chiropractic and Physiotherapy." Edwin F. Bowers, according to the same piece of stationery, has his office at 642 South Berendo Street, Los Angeles. This is the same Edwin F. Bowers who, for many years, posed as an M.D., who contributed articles to *Physical Culture* in which he was labeled "M.D.," and who even went so far as to have printed stationery with the degree of "M.D." after his name, and who signed letters "Edwin F. Bowers, M.D."

This department of The Journal, some years ago, exposed the pretenses of Bowers, who has never been graduated by any reputable medical school. He used to work his game from the east, but after the Bureau of Investigation brought out the facts, he seems to have gone to Los Angeles. Where or how he acquired the title of "Doctor of Chiropractic," whether by correspondence or attendance, we do not know. Probably even the chiropractic colleges do not know. And even if he had a D.C. degree what would that have to do with the use of phenobarbital?

A testimonial for Phenoleptol, which is sent out as part of the advertising matter for that fake, purports to be from "A Prominent Florida Doctor," one "Dr. J. S. Riley, 359 Eighth Avenue, St. Petersburg, Fla." This seems to be none other than the redoubtable Joe Shelby Riley, who while he has claimed to be a graduate in medicine, is in fact, so far as our records show, not a graduate of any reputable medical school. Riley, at various times and in various places, has described himself as an M.D., and as a graduate in "Osteopathy, Naturopathy and Chiropractic." During 1913-1914, while Riley was in Boston as a chiropractor, it was reported that he was convicted and fined. He seems, first, to have appealed from the conviction but later to have changed his mind and paid the fine.

Riley, according to our records, was "president" of the "New England College of Chiropractics," a concern that was reported as having been found guilty of conferring diplomas illegally. After Massachusetts made it uncomfortable for him, Riley left that state and went to Washington, D. C. There, in 1920, he was using letterheads on which "J. Shelby Riley, Ph.D., LL.D., M.D., D.C., M.S., D.P.," was designated as "President" of the "National University of Therapeutics." This institution was described as "embodying and affiliated with the Universal College of Sciences, the National Phrenological Institute, the New England College of Chiropractic, the Washington School of Chiropractic." In 1921, Riley's letterheads declared him "President" of the "Riley School of Spinal Therapy (Successor to and Including the Washington School of Chiropractic)" of Washington, D. C. In 1928 and 1929, Riley was working the Cleveland, Ohio, field and distributing pamphlets on "The Cure of Deafness" and "Cancer, Its Cause and Eradication." In March, 1931, Joe Shelby Riley was advertising as an M.D. in the newspapers of St. Petersburg, Fla.

In advertising Nurosol, Vitosol, Phenoleptol and Renesol, quotations from medical literature are misused to make the public believe that scientific men have written in praise of these four nostrums, when, in fact, the quotations dealt with the substance phenobarbital. For instance, under Nurosol appeared this item:

> "Dr. Julius Grinker, Chicago, Ill., said in The Journal of the American Medical Association, it is the most effective remedy in the management of epilepsy . . ."

In the advertising of Vitosol and also of Renesol, there appears this statement:

> "In The Journal of the American Medical Association:—'It is the most effective remedy in the management of epilepsy . . .'"

In the Phenoleptol advertising we read:

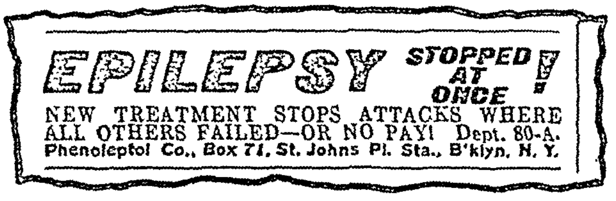
> "Prof. Julius Grinker: Journal of the American Medical Association. 'It is the most effective remedy in the management of epilepsy . . .'"

The facts are that the late Dr. Julius Grinker, in an article entitled "Further Experiences With Phenobarbital (Luminal) in Epilepsy" that appeared nine years ago (September 2, 1922) in The Journal of the American Medical Association, in summing up his opinion of the symptomatic use of phenobarbital in epilepsy, at that time, said:

"*Phenobarbital* is the most effective *symptomatic* remedy in the management of epilepsy."

In other words, Goldblatt and Goldberg have deleted the word "phenobarbital" and substituted the indefinite word "it," so as to make the quotation apply, respectively, to the nostrums they put out. They also have deleted, for their purpose, the important word "symptomatic" which Dr. Grinker naturally used in his statement.

The Messrs. Goldblatt and Goldberg even went so far as to drag in the name of the North Carolina State Colony for Epileptics, when, in advertising Renesol, they declared: "It is the *new remedy* which was used in the North Carolina State Colony for Epileptics. . . ." Dr. Albert Anderson, superintendent of that institution, wrote to the Renesol Laboratories, protesting against this misuse and received, in reply, a letter signed "L. Vollen," stating that the Renesol Laboratories were extremely sorry that the pamphlet containing this wholly false implication "has not yet been discontinued." They stated, further, that it would cause them considerable financial loss if they were required to destroy that particular pamphlet, but that if Dr. Anderson insisted on their doing so, they would destroy it. This was last November. In January, 1932, physicians were still sending in to the Bureau of Investigation some of the same Renesol pamphlets containing reference to the North Carolina institution.


EPILEPSY STOPPED AT ONCE!
NEW TREATMENT STOPS ATTACKS WHERE ALL OTHERS FAILED—OR NO PAY! Dept. 80-A.
Phenoleptol Co., Box 71, St. Johns Pl. Sta., B'klyn, N. Y.

An advertisement of one of the Goldblatt-Goldberg pieces of mail-order quackery.

Of all of the preparations put out by Goldblatt and Goldberg, Renesol seems to be the most widely advertised. Renesol used to be called "Nurosol," just as the Renesol Laboratories used to be called the "Nurosol Laboratories." Then, in 1929, they changed the name from Nurosol Laboratories to Renesol Laboratories, and the name "Nurosol" to "Renesol." In announcing this change, they made this statement:

> "We are very happy to announce the incorporation of a new ingredient into our Nurosol Remedy for Epilepsy sufferers. It took many years of experimenting to discover this ingredient, but we feel our efforts were fully rewarded. This addition gives our Nurosol Treatment greater therapeutic value. All the benefits of our old remedy can be obtained in a shorter period of time.
>
> "The new improved remedy with the added ingredient is known as renesol. This is the original Nurosol Treatment in which we have included the newly discovered ingredient which means *quicker* and more *certain relief* to all fit sufferers."

As Nurosol was advertised under exactly the same claims as Renesol is now advertised, with the same misleading quotations regarding phenobarbital (luminal)—with all reference to the drug itself deleted—one is justified in assuming that Nurosol was phenobarbital (luminal). Evidently, therefore, the "new ingredient" that Goldblatt-Goldberg claim to have incorporated into Nurosol, in order to make it Renesol, and which took "many years of experimenting to discover," is baking soda, as is shown below in the A. M. A. Chemical Laboratory's report. While numerous cursory tests have been made for some time past on specimens of Renesol that have been sent in by either physicians or laymen, no complete analysis had been made. For that reason, the Bureau of Investigation obtained an original "treatment" of Renesol direct from the Renesol concern. The medicaments were turned over to the A. M. A. Chemical Laboratory, whose report follows:

LABORATORY REPORT

"One original bottle of Renesol (The Renesol Laboratories, 509 Fifth Avenue, New York City) was submitted for examination to the A. M. A. Chemical Laboratory by the Bureau of Investigation. The bottle contained 65 pink capsules containing a white, odorless powder, possessing a mild alkaline taste.

"The average weight of the contents of ten (10) capsules was 0.0815 Gm. (approximately 1¼ grains) each. No statement concerning composition was given on the label, except: 'Contains no Bromides, Morphine, Opium or other Habit-forming Drugs.' (There was no accompanying circular received as stated on the label.) Microscopic examination indicated the presence of crystalline substances. Qualitative tests indicated the presence of a barbituric acid derivative, phenobarbital (Luminal), sodium and carbonate (presumably present as bicarbonate). Alkaloids, heavy metals, halides, sulphates, emodin-bearing drugs, lactose (milk-sugar) and starch were not found.

"Quantitative determinations yielded the following:

Phenobarbital	77.3 per cent
Sodium bicarbonate (baking soda)	23.1 per cent

"From the foregoing, it may be concluded that each capsule of 'Renesol—A Preparation for the Relief of Epilepsy' contains essentially 0.064 Gm. (approximately 1 grain) of phenobarbital, to which has been added a small quantity of sodium bicarbonate (baking soda)."

From this report, it is obvious that Renesol is essentially three-fourths phenobarbital (luminal) and one-fourth baking soda. One "treatment" of Renesol consists of 65 capsules, each containing approximately 1 grain of phenobarbital to the capsule. The company charges $4.50 for these 65 grains of phenobarbital, or, roughly, about seven cents a grain. Practically any retail druggist will put up phenobarbital in 1-grain capsules at not to exceed a cent and a half a grain. In other words, epileptics could purchase 65 1-grain phenobarbital capsules for less than a dollar, under no misapprehension as to the limitations—and dangers—of this substance. They pay $4.50 to the Goldblatt-Goldberg combination for the same stuff sold under various fancy names with no warning as to the products' potentialities for harm, and doubtless in the belief that the stuff will cure epilepsy.

Goldblatt and Goldberg have been carrying on this business now for some years under various misleading trade names; they have exploited a peculiarly unfortunate group, the epileptics, by selling at an exorbitant price, under false and misleading claims, a well-known drug that has no curative effect in the treatment of epilepsy; they have been doing this through the instrumentality of the United States mails. How much longer is the overworked fraud-order arm of the postal service going to allow Goldblatt and Goldberg to get away with it?

Mycosis Fungoides.—The condition familiarly known as mycosis fungoides is one of the most confused and confusing to be encountered in the domain of medicine. According to Fraser, at least nine different views have been advanced to explain its nature: that it is a granuloma; a cutaneous form of lymphadenoma; a lymphosarcoma; a condition midway between a granuloma and a sarcoma; an alymphemic lymphomatosis; a sarcoma engrafted on a previous dermatosis, as psoriasis or eczema; the last phase of a series of dermatoses that includes pityriasis rosea and the parapsoriases; a lymphoma of the skin, or, finally, the cutaneous manifestations of systemic disease.—Symmers, Douglas: Mycosis Fungoides as a Clinical and Pathologic Nonexistent, *Arch. Dermat. & Syph.* **25**:1 (Jan.) 1932.

Correspondence

REQUEST FOR OLD INSTRUMENTS FOR BENJAMIN FRANKLIN MEMORIAL

To the Editor:—We are preparing an exhibit of medical and surgical instruments, which we propose to house in the Benjamin Franklin Memorial and Franklin Institute Museum.

This institution, which we are building on the Parkway in Philadelphia, will doubtless be the world's greatest memorial to Benjamin Franklin. In addition to the memorial chamber, it will house all the activities of the old Franklin Institute and will contain also a modern museum of science and technology. We propose to install in the latter such a collection as we can make of surgical and medical instruments, both ancient and modern, which will show how the principles of physical science find application in the production of medical and surgical instruments.

It has occurred to us that there are, throughout the country, many physicians who would be interested in such a project and who would be willing either to donate, or to sell at low prices, old surgical or medical instruments. Any who are interested may send their names to Dr. Howard McClenahan, Secretary and Director, the Franklin Institute, 15 South Seventh Street, Philadelphia, Pa.

Howard McClenahan, Philadelphia.
Secretary and Director,
the Franklin Institute.

NUTRITIONAL ANEMIA

To the Editor:—I was of course interested in the editorial on nutritional anemia in The Journal, January 23. It is but natural that one not close to the details of this field would be left in confusion by the mass of material appearing in print from various sources. The work of Beard and Myers has added to the confusion. But that confusion will disappear in your own mind, I am sure, if you will turn to page 74 of the November, 1931, issue of the *Journal of Biological Chemistry*, in which their series of articles appear. Under the caption "Milk Used" you will read that the milk that they used was *"poured through about five feet of copper pipe into a large nickel cooler"* and that this milk contained 0.44 mg. of copper per liter.

It is of course obvious that one cannot demonstrate the supplementary relation of copper to iron when he starts his experiments with a milk that has been prepared by pouring through copper pipe and contains as much copper as their milk did. Experimental animals made anemic on that kind of a milk of course correct their anemia by the addition of iron only because there is already sufficient copper in the milk to meet the supplementary needs.

Keil and Nelson (*Proc. Soc. Exper. Biol. & Med.* **28**:392 [Jan.] 1931; *J. Biol. Chem.* **93**:49 [Sept.] 1931) experienced exactly the same trouble that Beard and Myers did in trying to demonstrate the supplementary relation of copper. They first worked with a milk containing 0.44 mg. of copper per liter, and of course could not demonstrate the needs of copper. After further correction of their technic of securing the milk in clean glass bottles, thereby obtaining milk with a copper content of about 0.23 mg. per liter, they were able fully to substantiate all of our work.

It is only fair to state that in the article of Beard and Myers referred to, they state that "in experiments with rats 196 to 256 the milk never came in contact with any metal containers." However, they give no estimation of the copper content of that milk, and their published records show that it was never used with iron as the only supplement but only with iron and zinc; but whether the contamination might have been from zinc no one knows.

In my judgment the confusion about nutritional anemia does lie, as you say, in the local factors; but these local factors are not mysterious factors at all. They are factors of deviation from a sound experimental technic which involves not only the source and handling of the milk but also the time of weaning of the young, and whether the young are left in contact with the ordinary ration or are handled in such a way as to prevent their securing grain food during the suckling stage. In the February issue of the *Journal of Biological Chemistry* we shall discuss the matter fully.

E. B. Hart, B.S., Madison, Wis.

SENSITIZATION TO CHRYSANTHEMUMS

To the Editor:—In The Journal, January 16, page 251, I note an inquiry about sensitization to chrysanthemums. In the answer, stress was laid on the petals as the possible cause of the dermatitis.

At a meeting of the Chicago Society of Allergy, Dec. 21, 1931, I reported a case in which the petals gave negative patch tests and the leaves gave a positive reaction. The ether soluble fraction of the pulverized leaves contained the active agent.

In a report in The Journal, May 16, 1931, page 1680, Goldstein reported the leaves as responsible for chrysanthemum dermatitis.

I note that the inquiring physician resides in California and in this connection my patient informed me that the chrysanthemums causing his dermatitis came from that state.

Isadore Pilot, M.D., Chicago.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

ACIDOSIS

To the Editor:—There is so much confusion about the word acidosis that I want to ask your opinion. I have always considered acidosis to be due to incomplete combustion of fats (for instance, in diabetes) and that the lack of the correct proportion of fats is the cause. Another school maintains that there is a carbohydrate acidosis. What definition has this school for the word acidosis? If it is a different condition from that ordinarily called acidosis due to fat, the word is misused and there are two conditions bearing the same name. Is there evidence of an altered acid-alkali ratio in the blood on a carbohydrate diet? If not, why say acidosis? I think that "they" must be confusing the matter on account of the stressing by pediatricians of sugar fermentation in infants. Some claim that there is an acidosis in pellagra. Of course, pellagra is known to be a vitamin deficiency disease, but in what way can an acidosis be brought about? I have never paid any attention to the using of alkalis with pellagra. I feed yeast, and the like. In fact, there is an absence or a deficiency of hydrochloric acid in the stomach, and an anemic state is produced. I give hydrochloric acid and not alkalis. Out of all this discussion, is there really any foundation for this propaganda against carbohydrates other than merely that an excess of these and the abstinence from proteins and fats produce deficiency diseases or obesity? Will living on carbohydrates cause all the dangers claimed?

W. B. Palmer, M.D., Furman, Ala.

Answer.—Our correspondent is quite correct in referring to the confusion in the use of the word acidosis. In fact, it has come to have somewhat different implications, as applied by different persons. Many clinicians employ the term in reference to the production of abnormal organic acids in the body, as the result of the aberrant oxidation of fats—a condition more properly referred to as ketosis.

Peters and Van Slyke (Quantitative Clinical Chemistry, Baltimore, Williams & Wilkins Company, 1931, vol. 1) give the following description:

> The terms acidosis and alkalosis have been applied almost indifferently to two types of conditions: (1) states in which the bicarbonate content of the blood is altered; (2) states in which the true reaction or hydrogen ion concentration of the blood is abnormal. In most of the commoner, and therefore earlier recognized, types of acidosis, as bicarbonate falls the alkalinity of the blood also diminishes, while in alkalosis the two functions move together in the opposite direction. For this reason little confusion is usually produced by this undiscriminating use of the terms. However, conditions are recognized, and not infrequently encountered, in which a reduction of bicarbonate is associated with increased blood alkalinity and increase of bicarbonate with a diminished blood alkalinity. The occurrence of such conditions necessitates exact definition of acidosis and of alkalosis unless these terms are to be replaced entirely by some more exactly descriptive nomenclature, such as the one that is proposed in a subsequent section of this paper.
>
> Acidosis may be broadly defined as an abnormal condition caused by the accumulation in the body of an excess of acid or the loss from the body of alkali. The more common cause is accumulation of acid, that is, a state in which acids are formed or absorbed more rapidly than they are destroyed or eliminated. The process may be considered to have produced a state of acidosis when it has caused either the bicarbonate of the blood to fall or the hydrogen ion concentration to rise above the normal limits.
>
> Alkalosis may be similarly defined as an abnormal condition caused by the accumulation in the body of an excess of alkali or by the loss of acid. The effect of either alkali accumulation or acid loss is to increase the bicarbonate and usually to diminish the hydrogen ion concentration of the blood.
>
> The exceptions to the general rule that the bicarbonate content and hydrogen ion concentrations in the blood move in opposite directions (that is, bicarbonate and *p*H vary in the same direction) is found in conditions in which the acid of which there is an excess or deficiency is carbonic acid

In his new introduction to biochemistry, R. J. Williams (An Introduction to Biochemistry, New York, D. Van Nostrand Company, Inc., 1931) says:

> The production of aceto-acetic acid and β-hydroxy-butyric acid and their accumulations in the blood brings about a condition of acidosis in which the blood is less alkaline than normal. The alkaline reserve of the blood and tissues is drawn upon to neutralize these acids since the blood never becomes acid in reaction. These acids are then excreted by the kidneys in the form of salts, and this means a constant drain upon the sources of alkali in the body. The most important means which the body uses to prevent this drain is the formation and utilization of ammonia to neutralize the acidity. The ammonia arises from protein as will be noted in the following chapter. A condition of acidosis is accompanied by a high output of ammonia (in the form of ammonium salts) in the urine, and usually by the production of a highly acid urine. In cases of nephritis in which the kidneys are not functioning normally, there may be a condition of acidosis which is not accompanied by highly acid urine. In acidosis of this type, the condition may be due not to faulty utilization of fats, etc., but to the inability of the kidneys to excrete the acids which are continually formed in the course of normal metabolism.
>
> It may be noted that diabetic acidosis probably works in a vicious cycle, since improper utilization of carbohydrates leads to abnormal acid production, and the decreased alkalinity which results probably prevents normal metabolism of carbohydrates. The alkalinity of the blood is probably maintained in part at least to facilitate the oxidation of glucose. Administration of insulin to diabetics, which permits glucose utilization, results in alleviation of the acidosis.

The acidosis of diabetes, a high fat or ketogenic diet, or acute starvation is caused by the appearance of acetoacetic acid, beta-hydroxybutyric acid and the decomposition product, acetone, in the body. These substances arise when an insufficient amount of carbohydrate is available during the utilization of large amounts of fat. This condition is therefore only one particular form of acidosis and might perhaps better be referred to (from the chemical structure of these substances) as a ketosis.

The belief that there is a condition of acidosis in pellagra is based chiefly on older observations that there is an increased acid excretion in the urine in this condition. Recent investigations (Turner, Tulane University) tend to show that there is no great acid-base disturbance in pellagra but rather a decrease in the concentration of the serum electrolytes. It is interesting to note, however, that there have been recent reports of a pellagra-like skin lesion appearing in patients with ketosis.

MIGRAINE AND MENSTRUATION

To the Editor—A married woman, aged 45, suffers from severe migraine during her menstrual periods. She has never been pregnant. The menses began at 14 and have always been regular, occurring at thirty-day intervals; the flow has been normal and there have been no cramps at any time. The patient feels perfectly well until she begins to flow. At this time the headache comes on, and it is continuous until the end of the period, which is after five days Physical and laboratory examinations give negative results. The family history is also negative. I have tried many sedatives, even resorting to morphine, with little relief. I have given the patient two months' treatment with an endocrine product, which gave no relief. Then I had her treated with x-rays, as suggested by Kelly in The Journal, Sept. 12, 1931, for I hoped to obtain relief by causing a cessation of the menses. This was not successful, and the last period, which she has just finished, was as bad as the periods before treatment. I should appreciate any suggestions that you may make. Please omit name.

M.D., Washington.

Answer.—Unfortunately there is no specific treatment for migraine even when it is associated with the menstrual periods. In spite of Kelly's success, elimination of the menses will not cure all cases of migraine that occur during the monthly flow, because many women who have this type of headache continue to have it after the natural menopause as well as before it. In the case cited, the roentgen treatment did not stop the menses; hence one cannot tell whether castration by irradiation will or will not cure the migraine. Since the patient is 45, there will most likely be no harm in applying a sufficient dose of the roentgen rays to eliminate the menstrual flow entirely. While waiting for the effect of castration, and certainly if the irradiation is not helpful, it is important that the patient take special care to build up her resistance. She should have a well balanced diet and plenty of fluids; she should take a good deal of exercise, especially outdoors, and she should be sure to have a bowel movement at least once a day. If necessary, a tonic should be given. A careful examination should be made to detect any possible cause.

EPIPHORA

To the Editor:—A woman, aged 30, complains of epiphora of the left eye for several years. This is not constant but is worse when she is reading or under nervous tension, as when at a party. Her correction under cycloplegic is O. D. + 0.25 cyl. ax. 15; O. S. + 0.50 cyl. ax. 180. A man, aged 56, has had epiphora of the right eye only, for several years. This is worse in very bright light and when the patient is reading for only a short time, even though the light is properly placed and subdued His correction is O. D. + 2.75 S. = + 0.50 cyl. ax. 180, and O. S. + 3.50 S., which gives a vision of 6/6 + + + O. U. The reading addition is + 2.50. Both of these patients are in good general health. There is no history or evidence of allergy. Neither is subjected to irritating substances while at work. In each case the puncta are patent and in normal position, and the nasal duct is fully open. There is no evidence *of blepharitis, conjunctivitis, or inflammation of the lacrimal gland.* Any suggestions as to possible causes and corrections of this condition will be greatly appreciated. Please omit name and address.

M.D., Ohio.

Answer.—It is evident that in neither of these cases is the refractive error the causative factor of the annoying epiphora. But it is possible that there is an imbalance of the ocular muscles that may be contributory. The so-called nervous lacrimation is always bilateral and hence falls out of this picture. Another possibility is that the lacrimal puncta of the affected side do not dip into the lacrimal lake when the eyes converge for reading and, consequently, the tears cannot enter the tear passage. It is, of course, taken for granted that the possibility of a minute foreign body of the cornea or a small corneal infiltrate has been eliminated.

PREPARATION OF HANDS AND OF PATIENT PREVIOUS TO SURGICAL OPERATIONS

To the Editor:—For many years the technic of preparation of patients for abdominal operations and of sterilization of the surgeon's hands has remained unchanged at our institution. The question has been raised as to whether improvements may not be made in this technic for the mutual benefit of physician and patient. I should greatly appreciate it if you would answer the following questions: Do you have any criticism of our technic, which is as follows: The operative area is shaved. The patient's abdomen is scrubbed with liniment of soft soap and water, then washed with alcohol, and dried. Tincture of iodine, 3.5 per cent, is painted over the abdomen, which is then covered with a sterile towel. This is done in the ward or room several hours previous to the operation When the patient, under anesthesia, arrives in the operating room, the abdomen is again painted with 3.5 per cent iodine, and the iodine is wiped off with 95 per cent alcohol, after which the operative area is draped and the operation proceeds. The surgeon's hands are scrubbed for seven minutes with soap and water; while wet they are dipped in half strength tincture of iodine and then into 95 per cent alcohol, after which they are wiped dry on a sterile towel. The gown is put on, the hands are powdered and dry gloves put on. Do you feel that the iodine in the tincture is of any practical value, or will 95 per cent alcohol or a mixture of alcohol and acetone serve the same purpose? Do you think it practical to eliminate the preparation in the ward or room, and do the preparation of the patient in the anesthesia room just before operation? The literature on this subject is unsatisfactory, and I shall greatly appreciate a reply.

Harold A. Kazmann, M.D., Long Branch, N. J.

Answer.—For abdominal operations many different schemes have been employed for preparation of the patient, the surgeon and the assistants, and good results have been obtained by a number of different methods. The method that has stood the test of time and is probably the simplest and best method today is the following: The operative area is shaved and the patient is scrubbed with liniment of soft soap and water and then washed with 70 per cent alcohol. This is followed by a thorough washing for a minute or more with 1:2,000 corrosive mercuric chloride solution. The area is then dried and the field is ready for operation. This is done in the preparing room immediately before the operation. There are definite objections to the use of iodine. A few patients have an idiosyncrasy against iodine, and its use is followed by irritation and it is not nearly as efficient as the alcohol and mercuric chloride.

In regard to the surgeon's hands, this preparation has been much simplified and improved. The surgeon should wash his hands thoroughly with castile soap and warm water. If a brush is used it should not be a stiff brush but one that does not irritate the skin—a rather soft nail brush can be used to advantage. The hands should then be put in a 70 per cent solution of alcohol; the denatured alcohol employed is probably best (70 per cent alcohol, 1 per cent of phenol and 29 per cent water). The hands should be kept in this solution for about ninety seconds, then taken out and dried on a dry towel; sterile talcum powder should be poured on the hands and dry gloves should be used. In addition to this, a basin of mercuric chloride, 1:2,000, should be on hand so that after the surgeon has put on his gloves he can put them in the mercuric chloride solution and wash off the extra talcum, and then wash off the mercuric chloride solution in sterile water. All this preparation should be done immediately before the operation in the preparing room just before the patient is anesthetized.

This method has the sanction of Moynihan, who has done such brilliant surgery; of Harvey Cushing, one of the great leaders in brain surgery; of Lexer, who endorses it in the last edition of his Allgemeine Chirurgie, in which the subject of preparation is fully dealt with, and of Bevan at the Presbyterian Hospital, Chicago.

PURE WATER AND THE GOLDFISH TEST

To the Editor:—It has recently been noted that goldfish, when put into the drinking water that is used at this institution, die within a few hours. The water is pumped from a river into a settling basin and thence into a mixing vat in the filtering plant, where it is mixed with alum and lime; it then goes into another vat and is filtered through seven different grades of sand. About 85 thousand gallons of water is filtered daily with 115 pounds of alum and 50 pounds of lime. Please advise whether this water would be injurious to human beings and what process of filtration might be used to filter the water successfully so that there would be no possibility of any ill effects from its use. If you are unable to give this information I shall appreciate it if you will advise where specimens of this water may be sent for analysis. Any information you may give will be appreciated.

J. D. Riley, M.D., State Sanatorium, Ark.

Answer.—The removal of excessive color or turbidity from a water by the use of aluminum sulphate as a coagulant, often with the addition of lime to give a suitable degree of alkalinity, has long been known and widely practiced in this country and abroad. The quantity of the chemical agent to be used depends on the character of the water treated and is ordinarily determined by trial. The amount of coagulant generally used is between 0.03 and 0.13 Gm. (one-half and 2 grains) a gallon, but larger amounts are frequently used, particularly when rapid action is desired. The water should contain a residual alkalinity of at least 10 parts per million if it has been treated with aluminum sulphate or any other aluminum compound. No injurious effect on the consumer of such treated water has ever been recorded. The goldfish test of the potability of water is open to objection. Goldfish may die from a variety of causes, such as lack of oxygen in the water, which would not affect the wholesomeness of the water for human consumption.

TREATMENT OF DYSURIA

To the Editor:—Could you tell me the most reliable drugs or combination to use in old people (60 years of age) for frequent urination, burning and pain? I have three cases at present and have had several women, aged from 45 to 60. It lasts two or three weeks, and possibly a year or so later another attack occurs.

George C. Stimpson, M.D., Poysippi, Wis.

Answer.—The symptom complex "dysuria," frequent, burning and painful urination is indicative of bladder irritation and may be due to cystitis, pyelitis or pyelonephritis, ulcer, cancer or tuberculosis of the bladder. Obviously, treatment of the cause requires first consideration. If the condition is cystitis, its cause, whether urethral stricture, enlarged prostate or cystocele, needs to be determined, and, if it is removable, relapses will of course be prevented. The treatment of the cause having been attended to as well as possible, and cystitis being the presumable cause, either the alkaline or the acid treatment should be adopted, according to whether the freshly passed urine is alkaline or acid. If the urine is acid (B. coli-communis infection), alkalizing the urine often gives striking benefit, as with the use of the following prescription:

		Gm. or Cc.
℞	Tincture of hyoscyamus	30
	Potassium citrate	30
	Water	30
	Aromatic elixir	to make 120

M. Label: one or two teaspoonfuls in glassful of water every two hours.

When the urine is alkaline to start with, and in acid urine cases after several days of alkaline treatment, the urine is rendered acid, and this is combined with the administration of methenamine; for alkalis are not curative: they merely relieve the symptoms. This acid-methenamine treatment, on the other hand, often temporarily increases the discomfort; and the patient should be warned of this beforehand. The best drug for acidifying the urine is acid sodium phosphate given in doses of from 1 to 2 Gm. three times daily, the limit to which it may be pushed being determined by its laxative action. If necessary, ammonium benzoate (0.6 Gm. three times daily) may be used as an adjuvant. As soon as the urine has been acidified, methenamine may be given in initial doses of 0.3 Gm. three times daily, increased as rapidly as possible up to the point of tolerance, or from 1 to 1.3 Gm. three times daily. In obstinate cases with a chronic tendency, silver nitrate bladder instillations (from 1:10,000 up to 1:1,000) are likely to be useful.

CHRONIC INFLAMMATION IN GONORRHEA

To the Editor:—I should like to know the best treatment that you would advise for chronic gonorrhea and for a morning drop which returns after a rest of a period of months. Various silver preparations, autogenous vaccines and dilation of the urethra, followed by astringent irrigations of silver, have been used; I also made a urethroscopic and a cystoscopic examination to determine the pathologic condition, and I found none. I advised rest for three weeks or more, and the condition subsided for from one to several months, and again it returned. I have even inserted 2 to 3 per cent mercurochrome-220 soluble into the bladder. I get results from most of the methods used, but the condition seems to recur again, in some cases returning with a clear watery discharge producing no symptoms whatever. Microscopic examination shows a few pus cells and a few streptococci and staphylococci. The Wassermann tests give negative results. In the meantime, with no continuous discharge and no stricture, would you become suspicious that a malignant condition might develop after a number of years? One case gives a history of twenty years or more, is relieved for a certain length of time, and then recurs again. When the aforementioned treatments are used, I find that some of the patients are greatly relieved by intercourse. I shall appreciate any information you will suggest that will help bring about a lasting result. Please omit name.

M.D., Nebraska.

ANSWER.—Recurrence of a urethral discharge following gonorrheal processes may be based on the presence of follicular infiltrations, urethral strictures with submucous infiltration, chronic prostatitis and vesiculitis. Persistent inflammations of the urethral glands are diagnosed by urethroscopy and if the condition does not yield to dilation and instillations must be destroyed by galvanocaustic or the diathermic needle. Strictures are properly diagnosed and located by the use of olive-tipped sounds. This kind of instrumentation is of paramount importance in the so-called wide strictures. Submucous infiltrations underlying the cicatricial tissue are diagnosed by palpation over an introduced steel sound. The routine treatment of such conditions is systematic dilation and massage over the sound followed by injections of some disinfecting fluid. If, however, dilation is followed in short order by retraction, such observations indicate the presence of elastic fibers within the scar tissue, and a stricture of this character has to be treated by urethrotomy. Quite often the extended use of silver salts will maintain a discharge, and in such instances irrigations with indifferent solutions have to be resorted to. In practically all the chronic cases the posterior urethra, prostate and seminal vesicles are involved. Prostatitis and seminal vesiculitis are diagnosed by bimanual palpation and by expressing the contents of these organs immediately following cleansing of the urethra by irrigation. Prostatitis and vesiculitis are treated by systematic massage combined with medical diathermy and repeated intradermic injections of some protein. In some instances, so-called dead inert submucous urethral infiltrations are benefited by the use of the Oberlaender dilator. Unfortunately, chronic "catarrhal" afflictions of the urinary mucosa may recur in spite of all therapeutic efforts and have to be treated at intervals as often as the exigency arises.

TOBACCO IN ANGINA PECTORIS

To the Editor:—The authorities that I have been able to consult on the management of patients with angina pectoris say that the patient must abstain from the use of tobacco. Is it the opinion of those who have made a thorough study of angina pectoris and disease of the coronary arteries in general that absolute abstention from tobacco is essential in all such cases? Please omit name.

M.D., Ohio.

ANSWER.—Most authorities, as is stated in the query, advise that a patient with angina pectoris abstain from the use of tobacco. Not all physicians, however, mean by this that there should be absolute abstention. The consensus is that the excessive use of tobacco is harmful. This opinion is based merely on clinical experience, but it is so general that there is probably some foundation in fact for it. Some physicians go so far as to say that there is a type of angina that is due solely to tobacco, a "tobacco angina"; others do not recognize this as a peculiar form. To repeat, the prevailing opinion is that the excessive use of tobacco in any form, but chiefly in smoking, has an influence in increasing the number and severity of the paroxysms.

TREATMENT OF RINGWORM OF NAILS

To the Editor:—For four months I have been treating a case of ringworm of all the finger nails with the exception of one index finger, at first using 10 per cent sulphonated bitumen and ammoniated mercury ointment, and trichophytin hypodermically, and later a solution of chlorinated soda locally. Have you any other suggestions besides Whitfield's ointment? Please omit name.

M.D., Virginia.

ANSWER.—Ringworm of the nail is the most difficult form of the disease to cure. Fractional doses of roentgen rays may be given, one-fourth erythema dose each week for from eight to ten weeks. Strong antiseptic applications should not be used with this treatment. The rest of the finger should be shielded and each nail treated separately. If this fails, or in place of it, the nail may be softened by a wet dressing of Fehling's alkaline copper solution for two days; the soft nail should then be removed and the finger dressed with 2 per cent solution of copper sulphate, 25 per cent sodium thiosulphate, or a strong solution, from 0.25 to 1 per cent, of corrosive mercuric chloride in 50 per cent alcohol. The latter should not be used longer than twenty-four hours.

USE OF REFRACTOMETERS

To the Editor:—I wish to obtain information as to the value of the Rodenstock nonreflecting prism refractometer, which is made by Rodenstock of Munich, Germany, and has as its distributor in the United States the Independent Traders, Inc., of 11 West Forty-Second Street, New York. Is it of value in the armamentarium of the oculist? Does it, as it is claimed, replace retinoscopy and homatropine? Please omit name.

M.D., New York.

ANSWER.—The Rodenstock refractometer is as good an instrument of its kind as there is on the market, and as much can be accomplished with it as with any mechanical instrument for refraction. It does not replace a mydriatic, for it does not overcome accommodation. With a mydriatic it is just about as accurate as retinoscopy, either spherical or cylindric, and requires about the same amount of time. Without a mydriatic, no more accurate refractive results can be obtained than with the ordinary trial case. Thus far no refractometer has supplanted the usual time honored methods of refraction or added to the accuracy or speed.

OPIUM IN SUPPOSITORIES

To the Editor.—In suppositories for relief of hemorrhoidal pain, why is opium, which does not exert a local anodyne action, usually the drug of choice in preference to cocaine, which does have a local effect? Please omit name.

M.D., California.

ANSWER.—The opium alkaloids as well as cocaine are readily absorbed from the rectal mucosa. Opium produces the desired anodyne effect after absorption. Cocaine is anodyne only as long as it is not absorbed. It may even fail to relieve the pain of hemorrhoids by local action, because the fleeting, superficial anesthesia induced by it does not extend to the nerves of the submucosa that are involved in the inflammatory process.

DIPHTHERIA CARRIERS

To the Editor:—I have a student, aged 8 years, who is a diphtheria carrier. In the treatment of a diphtheria carrier, is diphtheria toxoid or antitoxin of any avail? Or should local treatment be given? Should the student be quarantined? I should appreciate a detailed answer. Please omit name.

M.D., Oklahoma.

ANSWER.—Diphtheria toxoid or diphtheria antitoxin would probably not be of any avail in clearing up a diphtheria carrier. If the tonsils are abnormal they would better be removed; otherwise, ordinary nonirritating gargles may be used. Naturally, the pupil should be kept away so far as possible from other children who may be susceptible to diphtheria, as long as he is a carrier. In chronic carriers, testing the virulence of the organisms is always desirable.

PRESCRIPTION FOR SEBORRHEA OF SCALP

To the Editor:—Please inform me whether the following prescription is an adequate treatment for dandruff:

Zinc sulphate	2%
Salicylic acid	6%
White petrolatum, q. s. ad	100%

Directions: Rub thoroughly into the scalp after a shampoo.

Please omit name.

M.D., Arizona.

ANSWER.—Dandruff is the common name for any scaly condition of the scalp. No single form of treatment can meet all the conditions that cause it, some of which, indeed, are incurable. For an ordinary seborrhea of the scalp the prescription given may be beneficial.

Council on Medical Education and Hospitals

COMING EXAMINATIONS

Alaska: Juneau, March 1. Sec., Dr. Harry C. DeVighne, Juneau.

American Board of Obstetrics and Gynecology: Written examinations will be held in nineteen cities of the United States and Canada, March 26. The general, oral and clinical examination will be held in New Orleans, May 10. Sec., Dr. Paul Titus, 1015 Highland Building, Pittsburgh.

Arizona: Phoenix, April 5-6. Sec., Dr. B. M. Berger, 12 N. Central Ave., Phoenix.

California: *Reciprocity*. Los Angeles and San Francisco, March 16. Sec., Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento.

Connecticut: *Homeopathic*. New Haven, March 8. Sec., Dr. Edwin C. M. Hall, 82 Grand Avenue, New Haven. *Regular*. Hartford, March 8-9. *Endorsement*. March 22. Sec., Dr. Thomas P. Murdock, 147 W. Main St., Meriden.

Idaho: Boise, April 5. Comm. of Law Enforcement, Hon. Emmitt Pfost, Boise.

Maine: Portland, March 8-9. Sec., Dr. Adam P. Leighton, Jr., 192 State St., Portland.

Massachusetts: Boston, March 8-10. Sec., Dr. Stephen Rushmore, 144 State House, Boston.

Minnesota: *Basic Science*. Minneapolis, April 5-6. Sec., Dr. J. C. McKinley, 126 Millard Hall, University of Minnesota, Minneapolis.

Montana: Helena, April 5. Sec., Dr. S. A. Cooney, Power Block, Helena.

New Hampshire: Concord, March 10-11. Sec., Dr. Charles Duncan, Concord.

Oklahoma: Oklahoma City, March 8-9. Sec., Dr. J. M. Byrum, Shawnee.

Porto Rico: San Juan, March 1. Sec., Dr. A. Ortiz Romeu, Diaz Garcia Clinic, San Juan.

Rhode Island: Providence, April 7-8. Dir., Dr. Lester A. Round, 319 State Office Building, Providence.

West Virginia: Charleston, March 22. Sec., Dr. W. T. Henshaw, Charleston.

New Jersey June Report

Dr. James J. McGuire, secretary, New Jersey State Board of Medical Examiners, reports the written examination held at Trenton, June 16-17, 1931. The examination covered 9 subjects and included 90 questions. An average of 75 per cent was required to pass. Seventy candidates were examined, 67 of whom passed and 3 failed. The following colleges were represented:

College PASSED	Year Grad.	Per Cent
University of Colorado School of Medicine	(1930)	81.2
Yale University School of Medicine	(1930)	82.6
Georgetown University School of Medicine	(1930)	75, 77.1, 77.7, 78.6, 78.7, 78.8, 79.6, 80.4, 81.3, 82.3, 83.3, 83.3, 84.2, 85.2, 86.8
Howard University School of Medicine	(1930)	85.2
Loyola University School of Medicine	(1931)	82.7
University of Maryland School of Medicine and College of Physicians and Surgeons	(1930)	81.5
Harvard University Medical School	(1930)	86.3
Tufts College Medical School	(1929) 86, (1930)	79.8, 89.1
University of Michigan Medical School	(1930)	83.5
St. Louis University School of Medicine	(1930)	75, 78.7, 81.4
Columbia Univ. College of Physicians and Surgeons	(1930)	82.2, 86.3, 87.1
Cornell University Medical College	(1929) 88.7, (1930)	87.4
Long Island College Hospital	(1930)	82.1, 85.7
University of the City of New York Medical Dept.	(1893)	75
Hahnemann Medical Coll. and Hosp. of Philadelphia	(1930)	75.4, 80.4, 80.8, 82.4, 84.3, 85.3, 88.1, 88.8, 89.3, 89.6, 92.5
Jefferson Medical College of Philadelphia	(1930)	79.2, 79.7, 79.8, 80.3, 83.6, 84.1, 84.1
Temple University School of Medicine	(1930)	75
University of Pennsylvania School of Medicine	(1930)	78.6, 79.3, 80.8, 86, 88.7
University of Virginia Department of Medicine	(1930)	79.6, 84.7
University of Toronto Faculty of Med.	(1924) 81.4, (1926)	80.7
McGill University Faculty of Medicine	(1930)	75, 79.5
University of Bologna Faculty of Med. and Surg.	(1926)*	75

College FAILED	Year Grad.	Per Cent
Temple University School of Medicine	(1930)	73
University of Naples Faculty of Medicine and Surgery	(1923)*	64.7
University of Rome Faculty of Medicine and Surgery	(1927)	66

Dr. McGuire also reports 114 physicians licensed by endorsement from Jan. 12 to July 21, 1931. The following colleges were represented:

College LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
University of Colorado School of Medicine	(1927)	Colorado
George Washington University Medical School	(1930, 2)	New York
Howard University School of Medicine	(1912)	W. Virginia
Atlanta College of Physicians and Surgeons, Georgia	(1912)	Florida
University of Georgia Medical Department	(1927)	Georgia
Jenner Medical College, Chicago	(1915)	Illinois
Rush Medical College	(1925)	New York
University of Illinois College of Medicine	(1930)	Illinois
Indiana University School of Medicine	(1928)	Indiana
State University of Iowa College of Medicine	(1915), (1925)	Iowa
University of Louisville School of Medicine	(1927)	Indiana
Tulane University of Louisiana School of Medicine	(1929)	New York
Atlantic Medical College, Baltimore	(19[illegible]9)	Penna.
Johns Hopkins University School of Medicine	(1923)	Tennessee, (1928) Vermont
University of Maryland School of Medicine and College of Phys. and Surgs.	(1928) Maryland, (1928), (1929, 3)	New York
Boston University School of Medicine	(1929)	N. B. M. Ex.
Harvard University Medical School	(1927)	Mass.
Tufts College Medical School	(1924) Maryland, (1928)	R. Island
Detroit College of Medicine and Surgery	(1929)	New York
University of Michigan Med. School	(1918), (1920), (1929)	Michigan
University of Minnesota Medical School	(1924)	Minnesota
St. Louis University School of		Missouri
Washington University School o		Nebraska
University of Nebraska College		Nebraska
Dartmouth Medical School	(1895)	R. Island
Albany Medical College	(1928)	New York
Columbia University College of Phys. and Surgs.	(1927)	N. B. M. Ex.
	(1916), (1919), (1921), (1928, 2), (1929, 4), (1930, 3)	New York
Cornell University Med. College	(1911) New York, (1929)	N. B. M. Ex.
Long Island College Hospital	(1926), (1929, 3), (1930, 2)	New York
New York Homeopathic Med. College and Hospital	(1901)	New York
New York Homeopathic Med. Coll. and Flower Hosp.	(1930)	New York
Syracuse University College of Medicine	(1930)	New York
University and Bellevue Hospital Medical College	(1915), (1920), (1921, 2), (1927), (1928), (1929, 4), (1930, 5)	New York
University of Buffalo School of Med.	(1924), (1929), (1930)	New York
University of the City of New York Medical Dept.	(1895)	New York
Ohio Medical University	(1906)	Ohio
Western Reserve University School of Medicine	(1925)	New York
Hahnemann Med. College and Hosp. of Philadelphia	(1929)	Penna.
Jefferson Medical College of Philadelphia	(1926)	New York, (1918), (1926), (1929) N. Carolina, (1920), (1925) Penna., (1930) Tennessee
Medico-Chirurgical College of Philadelphia	(1896)	Penna.
Temple University School of Medicine	(1929, 2)	Penna.
University of Pennsylvania School of Med.	(1924), (1926)	N. B. M. Ex. (1928) North Carolina, (1929) New York
University of Tennessee College of Medicine	(1923)	Florida, (1927) Louisiana
University of Vermont College of Medicine	(1914)	Maine
Medical College of Virginia	(1929) Virginia, (1930)	New York
Queen's University Faculty of Medicine	(1899), (1927)	New York
University of Toronto Faculty of Medicine	(1928)	Michigan
University of Western Ontario Medical School	(1928)	New York
McGill University Faculty of Medicine	(1928)	N. B. M. Ex.
University of Graz Faculty of Medicine, Austria	(1922)	Connecticut
University of Berlin Faculty of Medicine	(1913)*	New York
University of Munich Faculty of Medicine	(19[illegible]4)	New York
University of Athens School of Medicine	(1911)*	Alabama
National University of Ireland Faculty of Medicine	(1924)	Connecticut
University of Catania Faculty of Medicine, Italy	(1899)	New York
University of Naples Faculty of Med. and Surg.	(1923)	Texas
School of Med. and Pharm. of Guadalajara, Mexico	(1915)	New York

* Verification of graduation in process.

Tennessee June Examination

Dr. Alfred B. DeLoach, secretary, Tennessee State Board of Medical Examiners, reports the written examination held at Knoxville, Memphis and Nashville, June 16-17, 1931. The examination covered 8 subjects. An average of 75 per cent was required to pass. One hundred and six candidates were examined, all of whom passed. The following colleges were represented:

College PASSED	Year Grad.	Number Passed
Howard University School of	[illegible]	3
University of Illinois College		1
University of Louisville Schoo		2
Tulane University of Louisian		2
Tufts College Medical School	[illegible]	1
St. Louis University School of	[illegible]	1
University of Pennsylvania Sc		1
Medical College of the State o		1
Meharry Medical College		36
University of Tennessee Colle		21
Vanderbilt University School		33
Baylor University College of		1
Medical College of Virginia	[illegible]	1
University of Virginia Department of Med.	(1930), (1931)	2

Arizona October Reciprocity Report

Dr. B. M. Berger, secretary, Arizona State Board of Medical Examiners, reports 12 physicians licensed by reciprocity with other states at a meeting held at Phoenix, Oct. 5, 1931. The following colleges were represented:

College LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
College of Physicians and Surgeons, Arkansas	(1910)	Arkansas
University of California Medical Department	(1898)	California
Tulane University of Louisiana School of Medicine	(1917)	California
Tufts College Medical School	(1924)	Mass.
Beaumont Hospital Medical College, Missouri	(1900)	Missouri
John A. Creighton Medical College	(1910)	Montana
Columbia Univ. College of Phys. and Surgs.	(1904), (1907)	New York
Starling Medical College, Ohio	(1895)	Ohio
Jefferson Medical College of Philadelphia	(1895)	Penna.
University of Tennessee Medical Department	(1909)	Tennessee
University of Tennessee College of Medicine	(1915)	Tennessee

Book Notices

The Measurement of Man. By J. A. Harris, C. M. Jackson, D. G. Paterson and R. E. Scammon. Cloth. Price, $2.50. Pp. 215, with 87 illustrations. Minneapolis: University of Minnesota Press, 1930.

This excellent volume is divided into four chapters, each written by an authority in his field. In chapter I, on the measurement of man in the mass, the late J. Arthur Harris points out that human attributes are rigidly lawful in their frequency of occurrence and that, when man is studied in the mass, many definite relationships can be detected and quantitatively expressed which would be overlooked if attention were limited solely to the consideration of individuals. The author discusses fully the measurement of type in masses of mankind, the measurement of interrelationship between the characteristics of man in the mass, and the measurement of the relationship between physiologic and physical characteristic in man.

In chapter II, on normal and abnormal human types, Clarence M. Jackson discusses the various racial types of mankind, types of body build, and comparative studies on the height, weight, weight-height index, chest circumference and expansion, vital capacity, pulse rate and blood pressure between male students at the University of Minnesota of purely Scandinavian and German descent. The relationship of the endocrine glands to human body build is briefly summarized.

In chapter III, on personality and physique, Donald G. Paterson reviews the preceding beliefs and knowledge of the subject, takes up the subjects of physiognomy and phrenology, and continues with a discussion of scientific studies of physique in relation to mental traits. He considers height and weight in relation to mental traits, and anatomic age, mental age and body build as related to intelligence and temperament. This is followed by a consideration of physical condition and intelligence. The author concludes by stating that, with the possible exception of physical factors associated with temperamental characteristics and of disease processes involving the higher centers of the central nervous system, no intimate relation exists between bodily traits and mental development. Ordinary physical defects and certain presumably deleterious physical conditions seem to be relatively unrelated to the enormous range of individual differences in intelligence.

In the final monograph, on the measurement of the body in childhood, Richard E. Scammon discusses growth in length, in weight and in surface area of the body in childhood. He then considers the growth of the various parts and organs of the body, and makes an interesting comparison between prenatal and postnatal growth. His conclusions as to the rate of growth are important. He points out that at birth the various organs of the body are growing at a rate of between 5 and 10 per cent of their attained magnitudes. In infancy and early childhood this relatively rapid rate of growth is reduced. The relative growth of the body as a whole (the general type) drops to a minimum at about 7 years of age and later shows a rise to about 12 years of age. The genital organs show little activity in growth until prepuberty, when there is a tremendous rise in their rate of growth, while the nervous system shows no increase in relative rate of growth in later childhood or adolescence. Finally, the lymphoid organs, as the thymus, show not only a relatively decreased rate of growth but an actual negative velocity, an actual loss of weight following puberty.

These monographs should prove of great value not only to the elementary student of this subject but also to all specialists in this field of science.

Theorie und Praxis der Krebskrankheit. Von Privatdozent Dr. Felix Mandl, Assistent der II. Chirurgischen Universitäts-Klinik in Wien. Cloth. Price, 10 marks. Pp. 141, with 28 illustrations. Vienna: Wilhelm Maudrich, 1932.

In the first part of the book the author discusses the incidence of cancer and its social aspects. Some statistics indicate an increase in incidence. An increased predisposition of certain organs to malignant disease is noted. The increased frequency of lung cancer is especially noteworthy. There follows a brief summary of the principal theories of the causation of cancer. Efforts in cancer control in Germany are directed toward the building of diagnostic centers rather than extensive education of the public as undertaken in America. The preventable cancers are enumerated and discussed. The failure to evolve a specific serodiagnostic test for the present leaves the diagnosis of cancer in the realm of microscopic pathology. The general principles of preoperative and postoperative radiation are briefly mentioned. The second part of the book deals with the symptomatology, diagnosis and treatment of the principal forms of cancer affecting various organs. The choice between surgery and radiation is stated in each instance and the value of combining radiotherapeutic and surgical methods is emphasized. The material is well arranged. The presentation is clear. As a concise statement of some of the principal aspects of cancer, this little volume constitutes a practical treatise which will be particularly useful to those having a general interest in the cancer problem.

Diabetes: Its Control by the Individual and the State. By Elliott P. Joslin, M.D. Harvard Health Talks Cloth Price, $1. Pp. 70, with illustrations. Cambridge. Harvard University Press, 1931.

This book is published as one of the Harvard Health Talks, of which some eighteen are now available, an excellent method for education of the public concerning what it should know about disease. The book is written in the usual succinct and, at the same time, attractive style of Dr. Joslin. His analysis of the mortality statistics in diabetes indicates that more people may be dying of the disease but that they are dying at advanced ages. Hence, they are living longer to die of diabetes rather than succumbing to the diseases that used to carry people off in their youth. Dr. Joslin feels that the control of diabetes will demand help by the state in educating the public, endowment of the general practitioner, the establishment of diabetic centers and the proper education of the people in restricted diets that will tend to prevent diabetes. A special section of the book is devoted to the work of the New England Deaconess Hospital, with which Dr. Joslin is associated, and exemplifies the manner in which good results have been accomplished in that institution.

Chirurgische und konservative Kosmetik des Gesichtes. Herausgegeben von Dr. Leander Pohl. Mit einem Geleitwort von Hofrat Professor Dr. A. Eiselsberg. Paper. Price, 25 marks. Pp. 383, with 445 illustrations. Berlin: Urban & Schwarzenberg, 1931.

The object of this book as set forth in the preface is to provide the general practitioner with the necessary information for him to determine whether or not a patient's appearance can be benefited by conservative or surgical procedures. It is also written for the plastic surgeon, giving standard and recent operative procedures without the technical detail usually found in a textbook. The several authors, each writing in his own specialty, belong to the Vienna school, and the treatise is therefore much more coherent than the usual composite work. The first article deals with the normal proportions of the face and is chiefly concerned with anthropometry; it considers the influence of age, race, sex and climate on physiognomy. The second article takes up the changes in the face resulting from internal disorders and is exceedingly interesting for all practitioners of medicine. While the average physician frequently has a clue to diagnosis from the patient's physiognomy, a perusal of this chapter will explain why certain old practitioners frequently make a diagnosis from what is called intuition, whereas their experience and scrutiny of the patient enable them to suspect disease from the facial appearance alone. The effects of faulty circulation, endocrine disturbances, functional disorders, bone disease, nerve lesions, and infections of various kinds are well illustrated. The cosmetic effects of many skin diseases are then taken up, together with a discussion of the most recent treatment of such disfigurations. It is interesting to note that the use of electrocoagulation has supplanted other forms of treatment in many instances of this kind. In the discussion of the subject of plastic operations on the face, many of the former operations which are now obsolete are wisely omitted, and the standard procedures, many of which are based on World War experience, are well described and illustrated. The descriptions of operations on the eyelids and bulb are well delineated and are of value to both the ophthalmologist and the surgeon. Succeeding chapters deal with deformities of the mouth, lips, jaws and palate. These chapters, too, are well written, are concise, and contain essential information. Deformities resulting from malposition of the teeth and their treatment are then taken up. The average surgeon will find here much information concerning the effects of such malpositions on the physiognomy and the value of orthodontia in the young as a method of preventing future facial disfigurement. The final article treats of the making of moulages and prostheses by the aid of "Negocoll" and "Hominit," two new materials which present many advantages over plaster-of-paris models. In conclusion it may be stated that the book fulfils its purpose well, that it will be of great service to the practitioner seeking information on this subject, and that it will also be a valuable adjunct to the library of the plastic surgeon.

Paying Your Sickness Bills. By Michael M. Davis. Cloth. Price, $2.50. Pp. 276, with illustrations. Chicago: University of Chicago Press, 1931.

This volume is published to include studies made under grants from the Rockefeller Foundation. It includes much of the material that Mr. Davis has used in his addresses and his published articles in recent years. He writes well, he has an extensive knowledge of medical conditions and affairs in various parts of the country, and he is able to present the story graphically. Thus he has drawn together a vast amount of statistical and other data concerning medical practice in this country. Through his association with various clinics, dispensaries and other attempts to provide adequate service for the middle class, he is able to contribute first hand information on the costs and the results of such institutions. One of his chapters deals with a study of sickness cost and care in 536 Chicago families based on a report made by the Institute of Medicine. A section on fee tables is enlightening.

Mr. Davis sees the solution of the problem in organized medical service. He calls for medical leadership apparently different from such leadership as is now available, hinting indeed that our present policies are short sighted. Like many other proponents of social medical schemes, Mr. Davis makes his case by shutting his eyes to much of the evidence that the opposition may muster. On page 255, he asserts that the report of the British Medical Association, reviewing the advantages which the British system of health insurance has given to the British medical profession and the public, received no notice whatever in the leading medical periodicals of America and little in less widely read journals. If Mr. Davis had consulted the index to the volumes of The Journal for 1930 he would have found several statements by the London correspondent outlining the plan. If he had cared to inquire at the headquarters of the American Medical Association he would have learned that most serious consideration was given to this report and that knowledge of its background depreciated its value greatly for the informed.

To recapitulate, the information that Mr. Davis has makes anything he writes in the field of medical economics interesting; but the bias, either conscious or unconscious, with which he approaches the subject interferes greatly with any value that it may have for the medical profession.

Archiv und Atlas der normalen und pathologischen Anatomie in typischen Röntgenbildern. Die Harnorgane im Röntgenbild. Von Professor Dr. Eugen Joseph und Dr. S. Perlmann. Fortschritte auf dem Gebiete der Röntgenstrahlen, Ergänzungsband XXXVII. Herausgegeben von Prof. Dr. Grashey. Second edition. Paper. Price, 64 marks. Pp. 87, with 372 illustrations. Leipzig: Georg Thieme, 1931.

The authors have compiled a neat work of reference, presenting all phases of modern urologic technic and roentgenologic diagnostic procedures of the urinary tract. The normal and the pathologic urinary tract are adequately reviewed. These subjects are illustrated with excellent drawings and roentgenograms obtained from the material of their large clinic in Berlin. Numerous case reports are presented with notes in English, German, French and Spanish, giving the clinical observations, the pathologic changes in the roentgenograms and the operative specimen as a confirmation of the preoperative clinical diagnosis. These cases are of particular interest and represent the earnest endeavor of the authors to present a work that will serve as an aid in thorough urologic studies and diagnoses. Anomalies of the kidney, ureter, bladder and urethra are well illustrated with contrast mediums, by either the intravenous or the retrograde route, in the roentgenograms. The sagacity of reporting a case of calcified renal cyst in which operation was not performed may be open to question. Intravenous urography, recognized as a new diagnostic procedure, is given its place in the advancement of urologic diagnostic acumen. Owing to lack of time and experience with the intravenous method, the authors well state that its indications, limitations and usefulness will be more standardized as time goes on. They point out, however, that patients with severe infections (tuberculosis) or bleeding may be examined more readily by the intravenous method. Children, especially boys, and patients with strictures of the urethra or ureter may be spared the incidence of trauma and anesthesia by the use of intravenous urography. They felt that cases of severe trauma to the urinary tract should be ideal cases for intravenous investigation, but because of lack of experience they did not advocate its use strongly. Open operation was favored for severe traumatic cases. The authors briefly outline their retrograde pyelographic technic and plead for the use of small ureteral catheters, recommending a number 5 F. for the average procedure. Small ureteral catheters are followed by less reaction, pain and trauma (colic and bleeding).

Roentgenologic Studies of Egyptian and Peruvian Mummies. By Roy L. Moodie, Paleopathologist to the Wellcome Historical Museum, London. Berthold Laufer, Curator of Anthropology, Editor. Field Museum of Natural History Founded by Marshall Field, 1893. Anthropology, Memoirs, Volume III Paper. Price, $5. Pp. 66, with 76 plates. Chicago: Field Museum of Natural History, 1931.

The science of paleopathology has yielded much information concerning the history of disease as it affects modern man. To this new science Moodie has been a noted contributor. His present contribution, issued in a limited edition by the Field Museum, deals with observations on Peruvian mummies made largely by the roentgenologic method. To the extent that the roentgen ray is limited as an aid in diagnosis, so also are the diagnoses limited, as they concern the mummies. The book contains numerous reproductions of x-ray plates and excellent photographs of bones and of mummy wrappings. It includes not only studies of human beings but also some studies of animals. Of particular interest are the discussions of otosclerosis, mastoiditis and the relics of syphilis as they appear in these ancient bodies.

Pathologie der oberen Luft- und Spoisewege. Abteilung 2. Herausgegeben von Prof. Dr. Felix Blumenfeld und Prof. Dr. Rudolf Jaffé. Paper. Price, 96 marks. Pp. 289-800, with illustrations. Leipzig: Curt Kabitzsch, 1931.

In a review of the first part of this book (The Journal, Nov. 23, 1929, p. 1676), announcement was made that the two parts would not be sold separately; it is now published in a single volume. The five chapters added constitute the major part in both amount and importance: wound healing and regeneration, by Fischer of Frankfort-on-the-Main; inflammations, by Hellmann of Würzburg; the final three chapters, on metaplasia, hypertrophy and hyperplasia, and tumors, by Rudolph Jaffé of Berlin in cooperation with Pfeiffer and Leicher of Frankfort-on-the-Main. The volume is well illustrated; many of the illustrations are in colors; the paper is uniformly heavy. Preceding the subject index at the end is a long index of names of persons mentioned in the numerous bibliographies at the conclusion of chapters, and of even many chapter subdivisions. The work is thoroughly German, the references in these bibliographies comprehensively reflecting German thought and progress in the special fields covered by the authors. Mention of publications in other than the German language is infrequent and then often through the Zentralblätter. The short chapter on hypertrophy and hyperplasia has no illustrations. The remaining seven chapters have, and the first illustration in each is figure 1, which shows how essentially encyclopedic the volume is. The difficulty in such works of maintaining uniformity of pattern, finish and timeliness has been deftly handled. There is little attempt at exhaustive treatment; in fact, the descriptions of disease are brief and vigorous, with ample directions for those who may desire more extensive treatises. As was predicted in the review of the first portion, the complete work has turned out to be a valuable reference work for specialists and for students in general.

The Diagnosis and Treatment of Venereal Diseases in General Practice: The Routine Management of Syphilis and Gonorrhoea Employed in the St. Thomas's Hospital Venereal Diseases Department. By L. W. Harrison, Director of Venereal Department, St. Thomas's Hospital. With a chapter on the Medico-Legal Aspects, etc., by F. G. Crookshank, M.D., F.R.C.P. Fourth edition. Cloth. Price, 25s. Pp. 567, with illustrations. London: Humphrey Milford; New York: Oxford University Press, 1931.

This revised fourth edition is a valuable and practical publication not only for the general practitioner but also for the medical student. It is an excellent book for teaching purposes. A systematic complete examination of all patients is suggested rather than the partial instalment type of observation. The diagnosis of syphilis is taken up with the lesion proved syphilitic, followed by a differential diagnosis of any disorders with which it might be confused. Well chosen illustrations throughout the book give clear-cut typical examples of the lesions usually seen in venereal disease. Treatment of gonorrhea in the male is much the same as followed in the United States. The section on the treatment of gonorrhea in the female has been revised and enlarged. The author devotes some space to a discussion of stricture of the female urethra. Because of its frequency, this is an important phase in the diseases of the lower urinary tract in the female. The use of arsenicals and the heavy metals in the treatment of syphilis is thoroughly discussed. Of the heavy metals, bismuth, because of its higher specific index, is preferred. Syphilitic treatment is outlined by the use of bismuth preparations and neoarsphenamine over a period of years by the interrupted method. A well written concise chapter on public health and medicolegal aspects is presented. The end of the book is devoted to laboratory methods used for the demonstration of micro-organisms, complement fixation and serum reactions.

Hervorragende Tropenärzte in Wort und Bild. Von Univ.-Prof. Dr. med. G. Olpp, Direktor des Deutschen Instituts für ärztliche Mission und des Tropen-Genesungsheims in Tübingen. Paper. Price, 30 marks. Pp. 446, with portraits. Munich: Otto Gmelin, 1932.

This volume contains over three hundred biographies and bibliographies of investigators of tropical disease. The sketches are of about five hundred words each, arranged in alphabetical order. The work thus constitutes one of the most valuable works of reference available on the subject. Full credit seems to have been given to such American investigators as Ashford, Ricketts, Theobald Smith and Flexner.

Pediatric Education. Report of the Subcommittee on Medical Education. Borden S. Veeder, Chairman. White House Conference on Child Health and Protection, Section on Medical Service. Committee on Medical Care for Children. Paper. Pp. 109. New York: Century Company, 1931.

This is a report of the subcommittee on Pediatric Education of the White House Conference on Child Health and Protection. The report is comprehensive and points the way toward the reforms in pediatric education which need to be started. As a result of the study, it is recommended that enlargement of the teaching facilities for pediatrics be made in the medical schools, and that the subject should be taught from the broader aspect. Two hundred hours should be the minimum time assigned to pediatrics in the four year course. The planning of pediatric education along the lines designated in this study will bring about improvement in the instruction in this field.

Diphtherieepidemien der letzten Jahre, das Heilserum und die Schutzimpfung. Von Dr. E. Friedberger, o. Professor der Hygiene, Leiter des Instituts. Paper. Price, 4 marks. Pp. 50, with 56 illustrations. Berlin: Urban & Schwarzenberg, 1931.

The author, professor of hygiene and director of the Institute for Research in Hygiene and Immunology, reports a study of epidemics of diphtheria which he made to determine the value of preventive immunization and the use of antitoxin. In the introduction he cautions against attributing to specific measures of prevention reduction in epidemics which may be due in part to political conditions resulting in better standards of hygiene. Curves are given showing the increase of diphtheria in recent years in European countries, where economic conditions since the World War have presumably adversely affected living conditions as contrasted with progressive lessening in the incidence of diphtheria in the more prosperous countries. There follows a discussion of the various methods for immunization against diphtheria, with numerous illustrations of the propaganda employed by health departments in this and other countries. The author believes that such extensive use of immunization against diphtheria is not justified. He concludes that the preparations used up to now for immunization are ineffective and that on the other hand there is danger of precipitating an attack of the disease in previously healthy carriers of the diphtheria bacillus, a danger that is multiplied if immunization is undertaken at the height of an epidemic. He urges search for a better method of treatment than is afforded by antitoxin. If the author is correct in his assumption that the decrease of diphtheria in America is due not to immunization but to prosperity, recent statistics should show a sharp rise in the incidence of the disease.

Matas Birthday Volume: A Collection of Surgical Essays Written in Honor of Rudolph Matas, New Orleans. Cloth. Price, $10. Pp. 396, with portrait of Dr. Matas and 102 illustrations. New York: Paul B. Hoeber, Inc., 1931.

This volume is a reprint from the *American Journal of Surgery* of a collection of essays in honor of Prof. Rudolph Matas. Most of the essays deal with distinctly surgical subjects discussed by men who have written extensively in surgical fields. A few are historical and outside the field of surgery. The volume includes an appreciation of Professor Matas, a biography and a beautifully printed photograph.

Grosse Ärzte: Eine Geschichte der Heilkunde in Lebensbildern. Von Dr. med. Henry E. Sigerist, Professor an der Universität Leipzig. Cloth. Price, 10 marks. Pp. 310, with 68 illustrations. Munich: J. F. Lehmann, 1932.

Through biography one learns the history of mankind, since history is but a recounting of the acts of individuals and their influences on one another. Professor Sigerist begins his account with the mythical Imhotep and Asklepios, follows with Hippocrates, and then discusses biographically all the great figures of medicine whose names are associated with periods of progress. The style of the book is literary, marked by an excellent vocabulary and by a sense of humor and of the drama. Each of the sketches is illustrated with an excellent portrait. It is fortunate that this book is soon to be made available in an English translation.

Medical Psychology: The Mental Factor in Disease. By William A. White. Nervous and Mental Disease Monograph Series, No. 54. Boards Price, $3. Pp. 141, with 4 illustrations. Washington, D. C: Nervous & Mental Disease Publishing Company, 1931.

Dr. White has in his inimitable way written a brief but pithy discussion of the psychologic factors in disease processes, in which he pleads for a consideration of the patient as a whole individual. His book is not alone concerned with pure psychologic disturbances but the psychology of the physically sick. He discusses the various theories and schools of modern psychologic thought and presents the whole matter in a readable fashion for the nonspecialist. It is a book well worth while in the possession of the internist as well as the psychologist.

Hunger und Appetit: Untersuchungen zur medizinischen Psychologie. Von David Katz. Paper. Price, 4.20 marks. Pp. 70, with 5 illustrations. Leipzig: Johann Ambrosius Barth, 1932.

The author is a psychologist who has done some experimental or observational work on feeding behavior in children and animals. The monograph is of interest mainly to psychologists. Hunger and appetite are frequently confused by the author, and speculations are given undue prominence. Much of the recent objective work on hunger in man and animals is not even referred to. It is not a significant contribution to biology.

Man and Woman in Marriage. By C. B. S. Evans, B.A., M.D. With an introduction by Rudolph Weiser Holmes, M.D., Professor of Obstetrics, Northwestern University Medical School. Cloth. Price, $2. Pp. 113. Chicago: Bruce-Roberts, Inc., 1931.

There seems to be an increasing demand for books to guide young couples in the physical intimacies of married life. Sex education is not a part of the curriculum in any regular institution of education, particularly not the type of sex education involved in sex relations. The book by Evans gives all the advice that anybody needs to know and may be useful to those who do not know it.

Medicolegal

Adjusting Physician's Fee to Patient's Wealth

(Caulk v. Anderson (Texas), 37 S. W. (2d) 1008)

The plaintiff, a physician, attended one Brackenridge. After his patient's death, he brought suit against his executors to recover the reasonable value of the professional services rendered. He pleaded that Brackenridge had been a highly successful business man of advanced age, owning an estate of more than a million dollars; that the services rendered involved his relief from great suffering and the prolongation of his life; and that the performance of such services required the highest professional skill, based on long experience. The trial court permitted the plaintiff to prove Brackenridge's wealth and refused to instruct the jury to disregard that proof. The jury thereafter found a special verdict to the effect that $10,000 was reasonable compensation for the services rendered, and judgment was given in favor of the physician. On appeal by the defendants, however, the court of civil appeals, eighth supreme judicial district, concluded that the admission of evidence as to Brackenridge's wealth, and refusal to instruct the jury to disregard it, constituted reversible error.[1] The plaintiff-physician thereupon appealed to the Supreme Court of Texas.

The difficult and important question for determination, said the Supreme Court, is whether the jury may rightly consider the wealth or poverty of a patient in fixing the reasonable value of the services of his physician. The authorities are divided on the question. The value of a service, said the Supreme Court of Iowa, depends on the difficulty of rendering it, on the skill required in its performance, and sometimes on the results accomplished, but not on the riches or the poverty of the person for whom the service is performed; and, said the court, "There is no more reason why this charge should be enhanced on account of the ability of the defendants to pay, than that the merchant should charge them more for a yard of cloth, or the druggist for filling a prescription, or a laborer for a day's work." *Robinson* v. *Campbell,* 47 Iowa 627.

Such a view, said the Supreme Court of Texas, disregards the essential purpose of the employment of the physician, which is to relieve the pain, restore the health, avert the death, and prolong the life of a human being. Since a cardinal object of the physician's employment is to prolong the life and restore the health of a human being, any evidence bearing on the pecuniary value of such life and health cannot be logically ignored in the search for the truth as to reasonable compensation for the services rendered under the employment. The principle which must govern in this case is the principle that underlies the settled rule in negligence cases, that in ascertaining the pecuniary loss resulting from death or permanent bodily injuries, the jury may consider, not only the age, occupation, habits, and health of the deceased or injured person, but also the amount and value of his property and his earning capacity. Had the patient Brackenridge suffered permanent injury or [illegible] his life as the proximate result of the negligence of his [illegible] in performing his professional duties, no one could [illegible] that he, or a dependent relative, might have proved [illegible] patient's wealth and business capacity, under the established law of Texas, in an action to recover the damages for which his physician would then have been liable. Such testimony would be admissible because it would help to determine the pecuniary value of the patient's health and life. For the same reason, testimony of a patient's wealth is admissible as a circumstance to determine the value of services resulting in the restoration of his health and his capacity to perform his customary duties, as well as in the prolongation of his life.

The services of an attorney in a capital case most nearly correspond to the services of a physician in a capital operation to avert imminent death. In a capital legal case, how could it be reasonably denied that a jury might consider the client's income and estate, in estimating either the pecuniary benefit to accrue to the client from an acquittal, or the responsibility and burden of the attorney? And the Supreme Court of Texas has said that where the burden of an attorney is increased or diminished thereby, the jury may consider the wealth or poverty of the client in determining the reasonableness of the attorney's fees. That doctrine accords with the opinion of Associate Justice Grier of the Supreme Court of the United States in *Lombard* v. *Bayard,* 15 Fed. Cas. 795, No. 8469, 1 Wall. Jr. 196 (affirmed in 9 How. [50 U. S.] 530, 13 L. Ed. 245), where it is said:

> Every gentleman of the bar well knows that there cannot be any one rule of charges in the nature of a horizontal tariff for all cases. Often, where the parties are poor and the matter in contest is small, counsel receive but very inadequate compensation for their exertion of body and mind; and for myself I know that for some of the most severe labor of my professional life I have been the least well paid. In other cases, where the parties are wealthy, and the sum in controversy large, they will receive a tenfold greater compensation for perhaps a tithe of the same labor. In some cases the whole sum in dispute would be poor compensation. In others, five per cent of it will be very liberal. Hence, in all cases, professional compensation is gaged not so much by the amount of the labor, as by the amount in controversy, the ability of the party, and the result of the effort. And this is perfectly just.

That there is in this country a "sliding scale for the costs of the same medical service, which may vary from $25 to $10,000, according to the wealth of the individual," is evidenced by a statement by the Secretary of the Interior of the United States, in reviewing a report of a Committee on Costs of Medical Care. Hence patient and physician must concur in regarding the patient's ability to pay as a matter to be properly taken into consideration in fixing, by express contract, fair medical fees. That which parties quite universally regard as important or even controlling in fixing the value of a certain service by express agreement ought not to be required to be wholly ignored in a conscientious effort to arrive at the reasonable value of the same service when that value has not been agreed upon.

The court of civil appeals erred, said the Supreme Court, in reversing the judgment of the trial court because the plaintiff-physician was permitted to plead and to prove his patient's wealth. For other causes, not pertinent to this abstract, however, the case was remanded to the district court for a new trial in accordance with the opinion of the Supreme Court herein expressed.

Medical Practice Acts: Use of Electric Vibrator and Sun Ray Lamp Not the Practice of Medicine.—A person conducting a gymnasium where baths and massage are given, heat is applied, and an electrical vibrator, together with heat from a sun ray lamp, is used, but no electrical treatments are given, is not practicing medicine without a license in violation of the New Jersey medical practice act.—*State Board of Medical Examiners of New Jersey v. Dussinger (N. J.), 154 Atl. 325.*

Accident Insurance; Aggravation of Preexisting Infirmity.—Though an insured person sustains a personal injury by the happening of an accident, his death is not brought about solely and independently of all other causes by that accident, if it would not have caused his death if he had not been already afflicted with a disease or infirmity.—*Ryan v. Continental Casualty Co. (C. C. A.), 47 Fed. (2d) 472.*

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[1] 5 S. W. 816 (2d) J. A. M. A. 92:837 (March 9) 1929.

Society Proceedings

COMING MEETINGS

American Association of Anatomists, New York, March 24-26. Dr. George W. Corner, University of Rochester School of Medicine, Rochester, N. Y., Secretary.

American College of Physicians, San Francisco, April 4-8. Mr. E. R. Loveland, 133 South 36th Street, Philadelphia, Executive Secretary.

Arkansas Medical Society, Little Rock, April 5-7. Dr. William R. Bathurst, 814 Boyle Building, Little Rock, Secretary.

Medical Society of the Missouri Valley, Omaha, Neb., April 5-7. Dr. Joseph D. McCarthy, 107 South 17th Street, Omaha, Secretary.

Mississippi State Medical Association, Jackson, April 12-14. Dr. T. M. Dye, Clarksdale, Secretary.

North Carolina, Medical Society of the State of, Winston-Salem, April 18-20. Dr. L. B. McBrayer, Southern Pines, Secretary.

Pacific Coast Surgical Association, Santa Barbara, Calif., *February 25-27.* Dr. E. L. Gilcreest, 384 Post St., San Francisco, Secretary.

Tennessee State Medical Association, Memphis, April 12-14. Dr. H. H. Shoulders, 706 Church Street, Nashville, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to The Journal in continental United States and Canada for a period of three days. Issues of periodicals are kept on file for a period of five years only. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending, but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below

American J. Obstetrics and Gynecology, St. Louis

12: 817-964 (Dec.) 1931

*Value of Hypertonic Glucose Therapy in Preoperative and Postoperative Conditions. J. O. Polak, V. P. Mazzola and L. Zweibel, Brooklyn. —p. 817.

*Pelvic Endometriosis: Spontaneous Rupture of Endometrial Cysts, with Report of Three Cases. E. Novak, Baltimore —p. 826.

Primary Epithelioma of Vagina. L. Mary Moench, Rochester, Minn. —p. 837.

Relationship Between Mother's Gain During Pregnancy and Infant's Birth Weight. P. W. Toombs, Memphis, Tenn.—p. 851.

*Analysis of 100 Cases of Ruptured Ectopic Gestation: Technic and Evaluation of Autohemofusion. J. V. Ricci and S. di Palma, New York.—p. 857.

*Abortion in Relation to Fetal and Maternal Welfare. F. J. Taussig, St. Louis.—p. 868.

Abdominal Operations During Pregnancy: Three Cases. F. C. Hammond, Philadelphia.—p. 878.

*Observations in the Use of Lugol's Solution in Hyperemesis Gravidarum F. H. Falls, Chicago.—p. 882.

Fetal Mortality: Study of 225 Consecutive Fetal Deaths in a Series of 4,668 Deliveries. R. M. Grier, Evanston, Ill.—p. 890.

*Rupture of Corpus Luteum with Intra-Abdominal Hemorrhage: Three Cases. J. P. Greenhill, Chicago.—p. 902.

*Ulcerative Colitis Complicating Pregnancy and the Puerperium. C. S. Barnes and Helen M. Hayes, Philadelphia.—p. 907.

*Clinical Observations on Etiology of Icterus Neonatorum. M. Franklin, Philadelphia.—p. 913.

Endometriosis of Umbilicus: Case. W. M. Thompson, Chicago.—p. 917.

Placenta Succenturiata: Three Cases. E. G. Waters, Jersey City, N. J. —p. 921.

Unusual Case of Pregnancy. R. S. Smylie, San Diego, Calif.—p. 924.

New Demonstration Eyepiece for Teaching Cystoscopy. I. W. Kahn, New York.—p. 926.

Hypertonic Dextrose Therapy.—Polak and his associates believe that shock, dehydration and acidosis are preventable in the majority of cases. In shock the plasma volume and cell volume must be restored. This can be accomplished by prompt treatment, either by direct transfusion or by the intravenous injection of hypertonic solutions of dextrose. The chemical composition of the blood is but temporarily changed when relatively large quantities of concentrated dextrose are used, and the excess passes over into the urine. Intravenous injections of hypertonic solution of dextrose definitely raise blood pressure and pulse pressure and increase the circulating volume of blood.

Pelvic Endometriosis.—Novak reviews the clinical aspects and discusses the etiology and histogenesis of pelvic endometriosis. He reports three cases and cites a fourth from the literature, of spontaneous perforation of unusually large endometrical cysts, with the production of acute abdominal symptoms. In two these suggested acute appendicitis, in the third a presumptive diagnosis had been made of ovarian cyst with twisted pedicle. In the case cited the symptoms had suggested "ectopic pregnancy or acute peritonitis." The author emphasizes that the possibility of this accident should be borne in mind when acute abdominal symptoms develop in cases in which the history and the pelvic observations suggest the probability of pelvic endometriosis.

Ruptured Ectopic Gestation.—Ricci and di Palma suggest the term autohemofusion in lieu of the ill chosen autotransfusion. They have autohemofused eleven patients with ruptured ectopic gestation with sudden profuse or moderately profuse hemorrhage. The procedure is of distinct value for the utilization of the free intra-abdominal blood. The red cells of the intra-abdominal free blood have been found microscopically normal as late as seventy-two hours after the time of the rupture. Autohemofusion is blood economy. Even for patients who are not in imminent danger, i. e., not in urgent need of blood, the salvaging and vascularization of from 300 to 500 cc. of blood (the usual amount found) will help toward an uneventful postoperative reaction and a more rapid recovery. Autohemofusion dispenses with the need of a transfusionist, grouping of serums and group testing, and eliminates the often distressing financial burden. Autohemofusion is a life saving therapeutic measure in the occasional ruptured ectopic pregnancy with a sudden and overwhelming hemorrhage, particularly when such a catastrophe occurs in a small community where the ordinary transfusion is not available within a safe margin of time.

Abortion and Fetal and Maternal Welfare.—Taussig states that an estimate of 700,000 abortions annually in the United States is certainly no exaggeration of the actual condition. There is every reason to believe that an increase in this number is taking place with each decade, similar to the experiences of other civilized countries. This increase is noticed primarily among married women who have three or more children. All efforts to control the incidence of criminal abortion by legislation have resulted in failure. Birth control may prove a factor in the reduction of criminal abortions, especially if more reliable contraceptive measures are discovered. The maternal death loss from abortion in the United States has been estimated as 15,000 annually. Deaths from puerperal sepsis following abortions are relatively seven times as frequent as those from puerperal sepsis after childbirth. The Russian experiment with legalized abortion indicates a definitely lower maternal mortality with operations done openly in hospitals than with secret, illegal operations as formerly. A decrease in maternal mortality can be expected from improving the training of medical students and physicians in the proper management of abortion cases and from an increased knowledge concerning the prevention and treatment of septic infection. The abortion problem, so vital to the human race, demands more careful and more open study, free from the trammels of political or religious dogma. Women should be taught to respect their duties, as mothers, to the social state, and the state in turn should be made to feel its obligations to motherhood, granting such relief, financial and otherwise, especially to those with many children, as will to the greatest degree avoid economic distress and promote the physical well being of the mother. The author believes that the women of this country should be told that interference with pregnancy, even in its earliest stages, is not the harmless procedure they generally seem to consider it but is a procedure inevitably associated with considerable risk to life and especially to future health.

Use of Compound Solution of Iodine in Hyperemesis Gravidarum.—Falls directs attention to the fact that in certain cases of pregnancy with hyperemesis the patients present evidences of hyperthyroidism and are benefited by the treatment for the latter condition. Compound solution of iodine administered orally, intravenously or intramuscularly apparently has been of value both as a prophylactic and as a curative remedy. In his rather small series of patients, some of whom were quite sick when first seen, the author has not had to resort to abortion since he has been using compound solution of iodine.

Rupture of a Corpus Luteum.—According to Greenhill, rupture of a corpus luteum with intra-abdominal hemorrhage, although reported in the literature less than eighty times, is much more frequent than this number indicates. Since there is nothing characteristic in either the history or the physical examination of this condition, a correct preoperative diagnosis can rarely be made. Regardless of this, the condition should be borne in mind when there are evidences of intra-abdominal hemorrhage in women. The chief predisposing factors in the causation of these ruptures are the same as those which are responsible for nonperforative hemorrhages within the ovary; namely, conditions which bring about hyperemia of the ovary and engorgement of its vessels. Trauma not infrequently plays a part. Among the author's three cases, one rupture was produced accidentally during bimanual examination.

Ulcerative Colitis.—The studies of Barnes and Hayes have led them to the conviction that colitis is a more frequent complication of pregnancy than the profession has realized: that the severe form, illustrated by cases presented by them, is probably not uncommon in pregnancy and in grave puerperal conditions, and not rarely the chief decisive factor in fatality. Doubtless the latter was true in their cases. Indeed, one of their patients did not show any pathologic changes that could be ascribed directly to pregnancy or to the puerperium, strongly suggesting that the symptoms of the disease under discussion may so simulate those of a puerperal condition as to lead to a false diagnosis.

Etiology of Icterus Neonatorum.—Franklin believes that, although not one of the theories he enumerates explains the primary cause of icterus neonatorum, some of them do explain secondary causes that are partly responsible for this condition. The theory that the uterine contractions after birth so compress the detached placenta as to force placental and cord blood into the circulation of the new-born and thereby produce the clinical signs and symptoms of icterus neonatorum seems to be the primary cause. The intensity of the icterus seems to depend on the relative proportion between the quantity of blood forced into the circulation of the new-born and the quantity of blood which should normally be possessed by that infant. While the avoidance of delay in tying or clamping the cord will not eliminate icterus neonatorum entirely, it apparently will reduce its incidence materially.

American Journal of Ophthalmology, St. Louis

14: 1203-1300 (Dec.) 1931

Review of Literature of Chronic Uveitis. E. Jackson, Denver.—p. 1203.
*Relation of Tuberculosis to Chronic Uveitis. W. C. Finnoff, Denver.—p. 1208.
*Etiology of Chronic Iritis. E. E. Irons, Chicago.—p. 1228.
Pathology and Management of Intra-Ocular Foreign Bodies. O. B. Nugent, Chicago.—p. 1236.
Intracapsular Cataract Operation: Simplified Smith Indian. W. A. Fisher, Chicago.—p. 1242.
Intra-Ocular Sarcomas: Cases. L. L. McCoy, Seattle.—p. 1247.

Relation of Tuberculosis to Chronic Uveitis.—According to Finnoff, chronic uveitis is frequently of tuberculous origin. Most cases of tuberculous uveitis are characterized by the formation of nodules. In the diffuse forms, without the presence of nodules, it is difficult or impossible to make a differential diagnosis between the tuberculous and other forms of uveitis from clinical data and symptoms. In these cases, only animal inoculations or microscopic examination of the affected tissue gives positive evidence. All parts of the uveal tract are vulnerable to tuberculous infection. The percentage of cases of chronic uveitis that are due to tuberculosis cannot be accurately estimated from a study of the literature. Tuberculosis is more often the cause of chronic uveitis in persons under 25 years of age than in later life. The symptoms of chronic tuberculous uveitis may be closely simulated by syphilis and sympathetic ophthalmia.

Etiology of Chronic Iritis.—Irons emphasizes the fact that in a comparison of the results of studies of the etiology of iritis, proper interpretation requires a consideration of the relative prevalence of diseases in the populations from which the cases come. Clinical observations and laboratory studies suggest that the mechanism of production of chronic and recurrent iritis includes allergic as well as embolic factors. In a small series of carefully classified cases there is an increasing incidence of evidence of tuberculosis and of probable tuberculous etiology in passing from acute to recurrent to chronic iritis. It is also evident, however, that the presence of evidence of past or present tuberculous infection does not alone warrant the conclusion of a tuberculous etiology.

American J. Physical Anthropology, Philadelphia

16: 1-122 (July-Sept.) 1931

Atavistic Human Foot: Its Developmental Significance. G. A. Williams, Atlanta, Ga.—p. 1.
Blood Studies on Peoples of Western Asia and North Africa. L. W. Parr, Andalusia, Ala.—p. 15.
Dermatoglyphic Prints: Neglected Records in Racial Anthropology. H. Cummins, New Orleans.—p. 31.
Dermatoglyphics in Eskimos. C. Midlo and H. Cummins, New Orleans.—p. 41.
Incidence of Separate Neural Arch in Lumbar Vertebrae of Eskimos. T. D. Stewart, Washington, D. C.—p. 51.
*Frequency of Pregnancies and Birth Interval Among Pueblo Indians. S. B. D. Aberle, New Haven, Conn.—p. 63.
Fecundity in Sioux Women. A. Hrdlička, Washington, D. C.—p. 81.
Conversion of Nonmetric Data to Form Suitable for Statistical Comparison. P. H. Stevenson, Peiping, China.—p. 91.

Pregnancies and Birth Interval Among Indians.—Women living in the pueblos of San Juan and Santa Clara in 1930 were found by Aberle to have between nine and fourteen pregnancies during their reproduction span. The modal interval between births was found to be approximately twenty-four months for Indian women living today, for Indian women living a century ago, for white women of the registration area of the United States in 1921, and for colonial women living a century ago. The birth rate among the Indians of today was approximately the same as that for the population of Copenhagen in the seventeenth century. It is significant that among five widely separated groups of women living under totally different environmental and cultural conditions the reproductive capacity should have been the same. It would seem that fertility was dependent on something intrinsic in the human organism itself rather than on culture or environment.

American Journal of Psychiatry, Baltimore

11: 401-599 (Nov.) 1931

The Dementia Praecox-Schizophrenia Problem. J. V. May, Boston.—p. 401.
Treatment of Stupor. K. H. Langenstrass, Washington, D. C.—p. 447.
Psychotherapy in the Schizophrenias. W. Malamud and W. R. Miller, Iowa City.—p. 457.
Clinical Observations in "Recovered" Cases of Schizophrenia. N. D. C. Lewis and Elsie Blanchard, Washington, D. C.—p. 481.
Deeper Layers of Schizophrenic Psychoses. G. Zilboorg, White Plains, N. Y.—p. 493.
Modified Psychoanalytic Treatment of Schizophrenia. H. S. Sullivan, New York.—p. 519.
Treatment of General Paralysis: Results in 197 Cases Treated from 1923-1926. L. E. Hinsie and J. R. Blalock, New York.—p. 541.
Rôle of Psychiatric Department in Relation to Pediatric Department in General Hospital. E. K. Clarke, Rochester, N. Y.—p. 559.
Recurrence of Attacks in Manic-Depressive Psychoses. H. M. Pollock, New York.—p. 567.

Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

26: 821-953 (Dec.) 1931

Roentgenology as a Specialty: Caldwell Lecture, 1931. G. F. Haenisch, Hamburg, Germany.—p. 821.
*Relation of Colitis to Polyposis of Intestine. J. A. Bargen, Rochester, Minn.—p. 834.
Undescended Cecum: Study of Its Embryology and Visceral Liaison as Bearing on Roentgen Examination. C. B. Peirce, Ann Arbor, Mich.—p. 839.
Multiple Manifestations of Subchondral Necrosis: (Osteochondropathia Juvenilis, Osteochondritis, Epiphysitis). W. C. Martin and H. Roesler, Boston.—p. 861.
An Unusual Manifestation of Epiphyseal and Joint Pathology in New-Born Infant. M. J. Geyman, Santa Barbara, Calif.—p. 868.
Methods of Measuring and Recording Roentgen-Ray Tube Currents and Voltages. C. Weyl, S. R. Warren, Jr., and F. M. McPhedran, Philadelphia.—p. 871.
*Graphic Method of Recording Respiratory Excursion of Diaphragm. H. Thomas, Boston.—p. 878.
*Results of Treatment in 152 Cases of Carcinoma of Skin. L. G. Ericksen and K. W. Stenstrom, Minneapolis.—p. 881.
*Deep Roentgen-Ray Burns, with Note on Burns Caused by Radium. J. S. Davis, Baltimore.—p. 890.
Congenital Atresia of Esophagus: Case. M. L. Sussman, New York.—p. 894.
*Absence of Half of Diaphragm (Thoracic Stomach; Diaphragmatic Hernia). E. L. Jenkinson, Chicago.—p. 899.
An Effective Gallbladder Stimulant to Supplant Fat Meal. L. Levyn, Buffalo.—p. 904.
*Diagrammatic Chart Showing Time of Appearance of Various Centers of Ossification and Period of Union. J. D. Camp and E. I. L. Cilley, Rochester, Minn.—p. 905.

Relation of Colitis to Polyposis.—According to Bargen, it has been definitely established that colitis is the basis of one form of polyposis. Colitis may bear a relationship to all polyposis of the large intestine, but its relation to the adolescent type would be difficult to establish. Inflammatory disease or irritation of some kind may play a part in the formation of disseminated or solitary polypi. The important differential diagnostic data include a carefully taken anamnesis, general examination, rectal digital examination, observation of the stool and rectal discharges, both grossly and microscopically, sigmoidoscopic investigation and roentgenology. The diseases from which polyposis must be distinguished include tuberculosis of the intestine, chronic ulcerative colitis, diverticulitis and malignant neoplasms.

Respiratory Excursion of Diaphragm.—Thomas demonstrates a technic for recording the amplitude of excursion of the diaphragm on a single film. This is attained by altering the exposure time, voltage or wavelength factors during inspiration. The method is of value as a routine in checking postoperative complications when roentgenoscopy is not available.

The amplitude of cardiac movement during respiration may also be traced.

Treatment of Carcinoma of Skin.—Ericksen and Stenstrom report the results of treatment in 152 cases of carcinoma of the skin treated at the Cancer Institute of the University of Minnesota from 1927 to 1930, inclusive. The epitheliomas are considered under three headings: basal, squamous and basal-squamous, or transitional, cell epitheliomas. Six per cent of lesions diagnosed clinically as basal cell were proved by biopsy to be basal-squamous. Because of this fact and also to determine radiosensitivity, biopsies should be made on all questionable lesions. Basal-squamous cell carcinoma requires a heavier dose than basal cell, and a wider area must be treated. Basal carcinoma practically never metastasizes. If metastasis does occur, the growth probably will prove to be the mixed cell type. Multiple lesions of either type or of both types may occur in the same patient. The main type of treatment used was roentgen therapy with a potential of 100,000 volts and no filter. Radium was used in a few instances. For some lesions, both surgery and radiation were employed, and these cases are discussed separately. The authors emphasize that they did not use any routine treatment but each case was individualized and treated accordingly. Slightly more than 50 per cent of the patients followed were cured (permanently) with one roentgen treatment. It seems probable that a higher percentage of cures from one treatment can be obtained if the initial dose is increased on an average by from 4 to 8 milliampere minutes. One hundred and thirty-three patients are still reporting occasionally for examination and of these, 69 with basal cell, 45 with squamous cell and 5 with basal-squamous carcinoma, or a total of 119 (90 per cent) have remained well from six months to four years. Nineteen patients were lost and fourteen cases were classed as failures. Of the failures, ten were far advanced when first seen. The authors believe that if cutaneous epitheliomas are diagnosed early and receive a proper initial treatment they should practically all be cured by means of roentgen or radium therapy except when cartilage is involved, in which case surgery is clearly indicated.

Deep Burns Caused by Roentgen Rays.—Davis believes that deep burns caused by roentgen rays occur much too frequently and the danger of causing such burns should be stressed rather than minimized. The destructive powers of roentgen rays and radium are very great and must be considered as well as their curative powers. There is no question that, therapeutically at least, these agents should be used only by experts and even then with the utmost caution. Early and wide excision of deep burns caused by roentgen rays or radium, with closure of the defect thus made, by tissue shifting, promises more surely than any other method yet devised the elimination of pain, an excellent prospect of permanent healing and in many instances the restoration of function and, in addition, gives a reasonable assurance of safety from subsequent malignant degeneration.

Absence of Half of Diaphragm.—Jenkinson states that congenital absence of the diaphragm, an uncommon condition, usually occurs on the left side but may be on the right. The condition should not be confused with diaphragmatic hernia or thoracic stomach. Thoracic stomach, a rare condition, does not necessarily shorten life and is comparatively easy to diagnose roentgenoscopically. The roentgenologist should be sure that the stomach, and the stomach only, is located in the thorax. Diaphragmatic hernia should be definitely differentiated from absence of one half of the diaphragm.

Chart Showing Time of Appearance of Centers of Ossification.—Camp and Cilley present a chart devised by them to give roentgenologists the essential data pertaining to the time of appearance of the various centers of ossification and the time of their union. The chart has been a convenient source of reference in the authors' routine work, and frequent requests for copies have prompted them to publish it for the benefit of those interested. Many of the drawings have been copied, with certain modifications, from standard anatomy textbooks and other works of reference pertaining to the subject. The appended information has been compiled from the same sources.

Annals of Internal Medicine, Ann Arbor, Mich.

5: 673-824 (Dec.) 1931

*Observations on Pneumococcus Type III Pneumonia. F. G. Blake, New Haven, Conn.—p. 673.

*Tularemic Pneumonia. H. H. Permar and W. W. G. Maclachlan, Pittsburgh.—p. 687.

Experimentally Produced Lesions of Liver. J. L. Bollman and F. C. Mann, Rochester, Minn.—p. 699.

*Further Studies in Allergic Migraine: Series of 202 Consecutive Cases. R. M. Balyeat and H. J. Rinkel, Oklahoma City.—p. 713.

*Diet as Factor in Etiology of Anemia. R. A. Kern, Philadelphia.—p. 729.

Anemia Associated with Gastro-Intestinal Disorders: Clinical Considerations and Value of Iron in Treatment. C. S. Keefer, Boston.—p. 740.

Morbid Anatomy of Diaphragm. B. Lucké, Philadelphia.—p. 750.

*Heart and Diaphragm. I. M. Trace, Chicago.—p. 759.

*Malignancy in Lung: Including Eight Primary Carcinomas with Autopsy Observations. H. M. Moses, Brooklyn.—p. 765.

Dietetic Treatment of Tuberculosis. E. S. Mariette, Oak Terrace, Minn.—p. 793.

Pneumococcus Type III Pneumonia.—Blake reviews a consecutive series of 122 cases of pneumococcus type III pneumonia admitted to the New Haven Hospital during the ten year period from Jan. 1, 1921, to Jan. 1, 1931. Confirmatory of previous reports, it was found that the incidence is greatest in the later decades of life, approximately 50 per cent of the patients being over 55 years of age. Males were nearly twice as numerous as females. No special racial susceptibility was found. The monthly incidence corresponded to that of pneumonia in general. Acute predisposing causes played an important part in the etiology of the disease, being of undoubted significance in 75 per cent of the cases. The most frequent predisposing causes were the acute respiratory infections—common colds, grip and influenza. These immediately preceded the onset of the pneumonia in 52 per cent of the patients. Exposure, exhaustion and acute alcoholism were recorded in 17 per cent. Chronic disease existed in 66 per cent of the patients and in all probability exerted a significant influence on susceptibility. Chronic pulmonary and vascular diseases and chronic alcoholism were predominant. The onset, the clinical course and the symptomatology of the disease were similar to those of other forms of pneumococcal pneumonia. In young adult life in otherwise healthy individuals the disease ran a mild course with early critical recovery. In the later decades the disease ran a more prolonged course and recovery by crisis was the exception. Pneumococcus complications were of the usual frequency. Empyema occurred six times, pericarditis twice and endocarditis once. Otitis media occurred five times in children. In spite of the high mortality, bacteremia was found in only 18.1 per cent of 116 cases and in only 37 per cent of the fatal cases. In the latter it occurred mostly as a terminal invasion from twenty-four to forty-eight hours before death. In only three cases was a high degree of bacteremia encountered. Although the total mortality in this series was high, 44.3 per cent, it is shown that this was largely determined by the factor of late age incidence and by the prevalence of chronic disease at all ages in those who succumbed. In forty patients not subject to chronic disease and irrespective of age, the mortality was only 15 per cent, while in seventy-nine patients suffering from chronic disease (including two with pregnancy) the mortality was 56.9 per cent. Finally, it may be concluded on the basis of the data presented that pneumococcus type III pneumonia is a highly fatal specific infectious disease due, in general, not to a highly virulent organism that attacks and kills a healthy host but rather to a debilitated, sickly or senescent host that succumbs to what is a relatively mild and uncommon infection in the young and vigorous.

Tularemic Pneumonia.—The case of tularemia that forms the basis of the report by Permar and Maclachlan was remarkable in that there was neither a peripheral ulcerative lesion nor regional lymphadenitis. The principal clinical manifestations were a markedly toxic state and an atypical pneumonia. Tularemia was suggested by the history of handling dead wild rabbits and was confirmed by a positive agglutination test for Bacterium tularense on the patient's blood serum. At necropsy the gross observations in the lung were unusual, indicating an acute lobar pneumonia with much interstitial inflammation and necrosis. The lesion suggested an acute diffuse reaction of granulomatous type. The histopathologic lesion was essentially an interstitial pneumonia, distinguished by multiple miliary necrotic foci throughout the stroma of the diseased lobe. These necrotic foci were identical with those seen in an acute diffuse tularemic infection. An intense and widespread inflammatory edema accompanied the development of the specific tularemic nodules in the lung. The blood vessels of the affected lobe showed great edema of the subendothelial and adventitial connective tissue, with an infiltration of mononuclear leukocytes into these coats. This involvement of the vessels produced much narrowing of their lumens, and complete occlusion by thrombosis was often found. Areas of necrosis of considerable size and irregular outline were a striking feature of the microscopic observations. This necrosis was associated clearly with the vascular lesions just described, and appeared to have been caused directly by the vascular narrowing and occlusion. Thus it may be stated that when a diffuse pulmonary involvement occurs in the course of a tularemic infection, the prognosis must be grave, as acute tularemic inflammation of the lung is a progressively destructive lesion. This is borne out by the data available on fatal tularemia.

Studies in Allergic Migraine.—From the study of 202 consecutive cases, Balyeat and Rinkel conclude that migraine is common in childhood, since in nearly one third of the cases studied the symptoms developed during the first decade. The syndrome is more common in business men, professional men and teachers than in laborers. About 7 per cent of all people in the United States sometime in life suffer from the symptom complex. As in asthma, symptoms of migraine in childhood may vary greatly from those in the adult. Gastric symptoms are usually marked. Migraine is interchangeable in the linkage with other allergic syndromes. A family history of allergic diseases was elicited in 167 out of 202 cases, or 82.1 per cent. Of the 202 cases studied, 81.1 per cent presented other allergic syndromes. From their observations the authors conclude that the exciting factor in all cases of migraine is a specific sensitization. There are many predisposing factors that should be investigated and eliminated. The pathologic change in migraine is probably a local vasomotor dilatation producing a local congestion of the brain corresponding to a hive on the skin. A familial history of allergy or a history of allergic manifestations in one who suffers from headache aids but does not establish a diagnosis of migraine. The treatment of migraine based on allergic observations gives results equal to the treatment of practically any other chronic disease.

Diet in Etiology of Anemia.—Kern believes that anemia from dietary causes results only when an unbalanced diet has been persisted in for a long time. The usual result of such an unbalanced diet is a secondary type of anemia, a chloroanemia. The diet fault in these cases is (1) most commonly a lack of iron and of hemoglobin-building elements, (2) rarely perhaps a lack of one or more vitamins or (3) a combination of 1 and 2. The development of pernicious anemia may perhaps be hastened by diet restrictions (probably of certain animal proteins) in patients with achylia gastrica (partial or complete lack of intrinsic factor for stimulating erythropoiesis). The combination of avitaminosis, low protein and iron intake may possibly at times produce an addisonian blood picture. In rare instances an addisonian blood picture may result from a diet inadequate, through prolonged protein starvation, in the extrinsic factor, which is necessary for the formation of the substance for stimulating erythropoiesis.

Heart and Diaphragm.—Trace emphasizes the fact that the abnormally high diaphragm is not the only source of diaphragmatic dysfunction. The low diaphragm, when pronounced, is productive of a goodly share of chronic invalidism. Its owner is nearly always thin and pale, with a long narrow chest and a protuberant ptotic abdomen. The extremities are cold, and blood and pulse pressures are low. The abdominal organs are palpable. Nearly always the victims of numerous poorly defined digestive complaints, they are not infrequently subjected to many unnecessary and repeated abdominal operations. Frequently, circulatory disturbances assert themselves: dizziness, dyspnea, palpitation and fatigue on exertion bring the patients to the physician. These patients present all the symptoms of an effort syndrome: the heart is small, the pulse weak, and the muscles are flabby. The fluoroscopic examination shows a narrow heart hanging suspended like a drop from the large blood vessels. The diaphragm is low, with poor respiratory mobility, and is definitely separated from the cardiac shadow. The poor filling of the cardiac chambers causes a relative arterial anemia with the subjective sense of exhaustion, and the suspended heart, lacking its diaphragmatic support, is liable to produce such bizarre signs as a paradoxical pulse or even a tracheal tug. A well applied abdominal support quickly brings relief. Prolonged rest in bed and hyperalimentation, aided by insulin, often improve the general condition remarkably. The author believes that the physician, who in physical diagnosis of the lungs takes into consideration the depth and shape of the thorax, the thickness of the parietes, the position of the heart and the mobility of the diaphragm, may profitably be on the alert in evaluating cardiac symptoms also, in connection with two important factors: the position and the mobility of the diaphragm. He will be rewarded by a better understanding of the mechanism of some symptoms and by fewer diagnostic errors, and the patient will profit by more intelligently applied therapeutic procedures.

Malignant Tumors of Lung.—Moses presents a study of eighty-one patients with malignant tumors of the lung. The symptoms presented by these patients varied according to the stage of the disease, the type of tumor, the site of the tumor, the amount of lung tissue involved and the presence or absence of effusion in the pleural cavity. The commonest symptoms were a cough, with or without expectoration, which, if present, was usually bloody at some period of the disease; dyspnea; pain; cyanosis; weakness, and emaciation. Hemoptysis was present in the patients having blood vessels involved in the tumor, with ulceration. Fever may be present in the early stages in the presence of a pneumonitis, which is usually diagnosed as an atypical pneumonia that does not resolve completely; in the later stages, fever is present because of an inflammatory process in and about the tumor. Abstracts of the histories of eleven patients are given, illustrating these conditions. The postmortem observations are reported with nine of these histories. Secondary growths in the lung show an advanced malignant condition in the body and, although electrical treatment may ameliorate the symptoms and prolong the patient's life, not a great amount of benefit is believed to result from the present treatment of these secondary conditions. In primary cancer of the lung, in order to diagnose the condition earlier than is usually done it is necessary that one concentrate one's attention on those patients (1) who complain of a persistent cough without demonstrable causes, (2) who expectorate bloody sputum at intervals, with no tubercle bacilli in the sputum, and (3) who complain of general weakness and loss of weight, and do not react to the usual methods of treatment.

Archives of Dermatology & Syphilology, Chicago

24: *937-1150 (Dec.) 1931*

The Interpretation of the Dermoluetin Reaction in Syphilis: Experience with the Kolmer Organic Extract. D. T. Gandy, Houston, Texas.—p. 937.
*Pathology of Yellowing Dermatoses: I. Nonxanthomatous (Jaundice, Carotinemia, Blood Pigmentation, Melanin, Colloid Degeneration and Elastic Degeneration). F. D. Weidman, Philadelphia.—p. 954.
*Injection Treatment of Cavernous Hemangiomas: Case and Historical Review. S. E. Light, Tacoma, Wash.—p. 992.
*Lupus Erythematosus in Infancy and Childhood. C. L. Cummer, Cleveland.—p. 999.
*Chemotherapy of Ringworm Infection: Preliminary Report. J. F. Schamberg, H. Brown and M. J. Harkins, Philadelphia.—p. 1033.
*A New Antimony Compound in Treatment for Leprosy. J. Kingsbury, New York.—p. 1053.
*Pemphigus Neonatorum Congenitus or Impetigo Neonatorum Congenita. C. D. Freeman, St. Paul.—p. 1058.
Multiple Benign Sarcoid (Darier-Roussy Type): Case. F. H. Stibbens, Oakland, Calif.—p. 1064.
Complete Loss of Pigment in the Skin of Negro: Case of Complete Leukoderma L. A. Golden, Boston.—p. 1069.
*Lichen Planus Confined to Mouth. H. Fox, New York.—p. 1071.

Yellowing Dermatoses.—Weidman states that a perspective of the pathologic changes, at least in the more obscure cases of yellowing dermatoses, is an additional avenue for arriving at a diagnosis; furthermore, while it sounds platitudinous, it is still in order to repeat that the linkage of the cutaneous pathologic process with analogous or correlated processes of the interior will throw light on the etiology of certain dermatoses. The substances that may occupy the skin and color it are given; the source, nature, kind of tissue affected and relation to clinical entities are discussed. The rather peculiar colloid degeneration met in the skin is compared with the colloid degeneration observed by the general pathologist; it is recommended that cutaneous colloid be considered as that of "colloid milium," that is, essentially gelatinous, and not yellow or positive to the van Gieson stain. In this light it should be added to the list of colloid degenerations already constructed by the general pathologist. The term "adenoma" is employed too loosely in dermatologic language; the criteria for its use are outlined, with application to "adenoma sebaceum." A review of the relevant literature suggests that Brugsch's intradermal test for iron (employing potassium ferricyanide) and carotene as a vitamin are likely to be of service to dermatologists. Observations that the author believes are original are as follows: submammary milia, affinities of carotene for epithelium and fat in frozen sections, the location of fat in xanthosis diabetica, and the demonstration of free fat in the lesions of senile elastosis by means of specific fat stains. Attention is called particularly to the following facts: 1. Fatty degeneration of the hyperplastic elastic tissue in senile elastosis is a frequent (physiologic) accompaniment of cutaneous senescence. 2. Such degeneration is a common complication of scarring processes, perhaps including morphea. 3. Histologic observations per se do not form an adequate basis for a differential diagnosis between pseudoxanthoma elasticum and senile elastosis. 4. Fatty degeneration of the hyperplastic elastic tissue is a hamartomatous phenomenon in pseudoxanthoma elasticum. The similarity in the distribution of senile elastosis to that of rosacea and lupus erythematosus is pointed out; partly on the basis of this similarity a hypothesis is recorded involving an elastic tissue rôle (preelacin in the circulating blood) in the pathogenesis of lupus erythematosus.

Cavernous Hemangiomas.—Light believes that although the majority of patients with angiomas may be successfully treated by means of radium, carbon dioxide snow, high frequency currents or surgical procedures, there are cases in which such methods are not feasible. This is most liable to occur in the cavernous type of angioma. In these cases the injection of irritating chemicals, such as are used in the treatment for varicose veins, may prove successful. The author reports a case of massive hemangioma of the leg which was not suitable for surgical intervention or treatment with physical agents. Remarkable success was obtained by the injection of sclerosing substances. The advantages of the injection method of treatment for hemangiomas are that (1) it may be used when other methods are impracticable; (2) no scarring is produced; (3) it is relatively painless, depending somewhat on the chemical used, and (4) it does not interfere with occupation, as the patient is ambulatory.

Lupus Erythematosus. — According to Cummer, lupus erythematosus can scarcely be regarded as rare in childhood, since general series of cases of the disease show that from 2.3 to 11 per cent occur during or before the fifteenth year of life. Search of the literature showed many cases included in general series as well as the 176 cases that are reported by the author. In a series of collected cases, the ratio of females to males was approximately 7:3. The disease occurs in the Negro as well as in the white child. It may have its onset during the first year of life. The incidence is progressively greater in each five year period of life, there being seven times as many cases in the period from 10 to 15 years, inclusive, as in the first five year period of life. Having started in childhood, the disease may last for many years, a duration of forty-two years having been reported. In general, the course of the disease in childhood, including the appearance of the eruption and its response to gold therapy, does not show any striking difference from that in adult life.

Ringworm Infection.—Schamberg and his associates state that it is obvious that there is a great hiatus between a splendid remedy in the test tube and the effect on a parasite in animal tissues. They have endeavored to produce ringworm in guinea-pigs and in rats, but thus far they have failed, although they have used several strains of fungi. They are now trying out mercury crystal violet and mercury fuchsin in the human subject, for ringworm eczema of the feet. The fungicidal power of these combinations is so strong that they can afford to use a weak concentration, particularly as a strong mercurial might irritate the skin. On the other hand, if one makes it too weak, one lessens the penetrative power of the dyestuff. The authors are therefore tentatively using a 0.25 per cent concentration of the compound in 25 per cent of alcohol, 25 per cent of acetone and 50 per cent of water. With this concentration they have made some attempt to determine its penetration into the horny layer of the skin. After painting a rabbit's ear for three consecutive days, they have removed the area and have made frozen sections of it. Microscopic examination discloses the fact that mercury crystal violet does penetrate the horny layer but does not stain it deeply. Mercury fuchsin is now under trial. Their clinical experience has been too brief to permit of any definitive statements. Their results, however, have been encouraging. In the type characterized by macerated skin between the toes, mercury crystal violet has given good results. Mercury fuchsin has produced encouraging results in ringworm of the nails, which are scraped with glass and painted daily. Mercury fuchsin is cosmetically better adapted for the finger nails, because it is a red dyestuff, whereas mercury crystal violet is a deep violet. In highly inflammatory areas or those to which much roentgen treatment has been applied, the authors prefer first to use other remedies until the inflammation has somewhat subsided. The exact method of application and the exact concentration that will give the best results are still the subject of study.

Antimony Compound for Leprosy.—Kingsbury reports the results he obtained in the treatment of four patients with leprosy by means of 3-3 diamino 4-4 dihydroxy arsenostibino benzene. The preparation is light brown and soluble in water, and it has an acid reaction. It is alkalized by the addition of 9 cc. of normal sodium hydroxide per gram. The resulting disodium salt is diluted with physiologic solution of sodium chloride, so that the final volume is not less than 0.1 Gm. in 10 cc. of solution. This solution is slowly injected intravenously with a small gage needle. The preparation is well borne. In the first case in which this preparation was administered a cure was apparently obtained. In the second and third cases moderate but progressive improvement was noted up to the time the patients were transferred to other institutions. In the fourth case there was an apparent arrest of the disease and a decided improvement in the symptoms and the appearance of the lesions. From his study of the four cases, two of the maculo-anesthetic and two of the nodular type, the author believes that this preparation of antimony is superior to the ethyl esters of chaulmoogra oil, and that the remedy is one that may be of considerable value in the treatment for leprosy.

Pemphigus Neonatorum Congenitus.—Freeman reviews the literature on congenital impetigo neonatorum and reports two cases of the condition. He emphasizes the fact that, unnoticed, congenitally infected infants may be the source of origin of epidemics.

Lichen Planus of Mouth.—Fox gives tabulated statistics on ten cases of lichen planus confined to the mouth, which occurred in four men and six women whose ages averaged 44.6 years. The average duration was four years. The eruption involved the mucosa of the cheeks in every case and the tongue in addition in six cases. Subjective symptoms of a mild type were noted in five cases. Of four patients who smoked, three did so moderately and one to excess. The teeth in general were in good condition. Four of the patients had a history of gastro-intestinal disturbance. None gave a history of syphilis, and in five cases in which the Wassermann test was performed it was negative. Histologic examination confirmed the diagnosis in four cases and probably also in a fifth. The result of treatment was in general unsatisfactory, improvement in some cases apparently being due to arsenicals and mercurials. From his observations the author concludes that lichen planus confined to the mouth is more frequent than is generally supposed, that the clinical differentiation from leukoplakia is usually possible, that the disease may persist for years and that treatment is unsatisfactory.

Arch. of Physical Therapy, X-Ray, Radium, Chicago

12: 709-765 (Dec.) 1931

Effect of Ultraviolet Energy on Erythrocytes in "Vitro." E. Mayer and M. Dworski, New York.—p. 709.
*Tuberculous Enterocolitis. B. Goldberg, Chicago.—p. 716.
Thermo-Electric Thermometer for Determination of Rectal Temperatures. G. E. Davis, Tucson, Ariz.—p. 724.
*Radium Therapy: Its Scope in Ophthalmology. Laura A. Lane, Minneapolis.—p. 730.
William Gilbert, the Father of Electrotherapy. F. H. Krusen, Philadelphia.—p. 737.
Protection Against Radio Interference from Electrical Apparatus. R. Kovacs, New York.—p. 744.

Tuberculous Enterocolitis.—Goldberg states that tuberculous enterocolitis, as most other forms of tuberculosis, is a lymph-borne disease and as such has a predilection for those portions of the bowel more abundantly supplied with lymphatic tissue. Prophylaxis, as practiced in the prevention of swallowing infected sputum and food, should receive greater attention. The diagnosis of tuberculous enterocolitis in its early stages should call for intestinal roentgenography at the first intimation of a gastro-intestinal upset and such roentgen studies should be repeated on recurrence of symptomatic manifestations when negative observations originally were obtained. The prognosis is not as grave as previously considered, especially in the presence of a pulmonary tuberculosis, which can be controlled. The prognosis is definitely improved by the detection of the intestinal lesion in its inception, and through the use of modern therapy. Treatment should be considered in its newer and wider scope. The properly balanced nonresidue vitamin mineral salt diet should be supplied. Ultraviolet therapy is a most important adjunct. There are definite indications which at times point out the usefulness of surgery.

Radium Therapy in Ophthalmology.—According to Lane, progress in the use of radium in ophthalmology has been slow but steady. Radium treatment is founded on a rational basis. The constant flow of energy from the element and its accuracy of measurement make it of real therapeutic value. The broken dose method has many advantages in ocular therapy. Biomicroscopy is most helpful in following up results of treatment. By its use scattered foci of malignant disease can be located which would otherwise escape detection. The treatment may be long and tedious; frequent follow up work is necessary, but the results fully repay the time and skill required in using radium about the eye.

Arkansas Medical Society Journal, Little Rock

28: 121-142 (Dec.) 1931

Chronic Appendicitis. G. V. Lewis, Little Rock.—p. 121.
Oculoglandular Tularemia. E. C. Moulton, Fort Smith —p. 124.
Varicose Veins and Injection Treatment. A. Isom, Dumas.—p. 128.

Endocrinology, Los Angeles

15: 357-472 (Sept.-Oct.) 1931

Consideration of Some of the Glands of Internal Secretion from Chemical Viewpoint. E. C. Kendall, Rochester, Minn.—p. 357.
Three Cases of Adult Myxedema in Women, Reported for Purpose of Calling Attention to Their Widely Different Symptomatology and Clinical Observations. H. Lisser and E. M. Anderson, San Francisco. —p. 365.
An Adrenal Cortex Extract: Its Development and Experimental and Clinical Use. R. L. Zwemer, New York.—p. 382.
Studies on Fat Metabolism: III. Lipemia Induced by Intravenous Fat Administration. H. R. Rony and B. Mortimer, Chicago.—p. 388.
Pituitary-Gonadal Relationship and Problem of Precocious Sexual Maturity. E. T. Engle, New York.—p. 405.
Regulation of Hypophysis by Testis, and Some Problems of Sexual Dynamics: Experiments with Parabiotic Rats. T. Martins and A. Rocha, Rio de Janeiro, Brazil.—p. 421.
Cerebral Adiposity with Mental Deficiency and Retinitis Pigmentosa: Laurence-Biedl Syndrome. E. Weiss, Philadelphia.—p. 435.
Some Clinical Aspects of Diminished Calcium Utilization. W. Timme, New York.—p. 442.

Indiana State Medical Society Journal, Fort Wayne

24: 649-704 (Dec.) 1931

Nontuberculous Infections of Lungs. F. D. Crimm, Evansville.—p. 649.
Present Status of Burn Therapy. C. C. Robinson, Indiana Harbor.—p. 652.
Future of Surgery. H. H. Martin, Laporte.—p. 656.
Traumatic Spine. P. D. Moore, Muncie.—p. 661.
Romance of Paternalism. W. F. Donaldson, Pittsburgh.—p. 663.
Indiana University School of Medicine: Critical Evaluation and Present Status of Theory of Chronic Focal Infection. J. K. Berman, Indianapolis.—p. 665.

Journal of Bacteriology, Baltimore

22: 375-452 (Dec.) 1931

Serologic Agglutination of Bacillus Sordellii and Clostridium Oedematoides. I. C. Hall and A. L. Scott, Denver.—p. 375.
*Lysis of Pneumococcus by Saponin. S. J. Klein and Florence M. Stone, New York.—p. 387.
Efficiency of Certain Germicides in Preservation of Biologic Products. W. G. Malcolm, Baltimore.—p. 403.
Pathogenicity and Classification of Micro-Organisms. E. A. Pribram, Chicago.—p. 427.
Relative Persistence of Bacterium Coli and Bacterium Aerogenes in Nature: I. Decayed Stumps. F. O. Tonney and R. E. Noble, Chicago.—p. 433.

Lysis of Pneumococcus by Saponin.—According to Klein and Stone, pneumococci are not dissolved by saponin when tested in plain broth culture. Treatment of the bacteria with cholesterol renders them susceptible to complete and rapid lysis by saponin. The cholesterol exerts a direct action on the bacteria, independent of bacterial reproduction. The bacteria must be in contact with the cholesterol for a definite period of time prior to the addition of saponin in order to obtain lysis. Excess of saponin inhibits the sensitization by cholesterol. Conversely, excess of cholesterol inhibits lysis by saponin. Animal fluids, e. g., blood or ascitic and pleural fluids, act similarly to cholesterol. Evidence is presented to show that the activity of these fluids is due to their cholesterol content. When cholesterol is esterified it loses its affinity for saponin and becomes incapable of sensitizing pneumococci to saponin. The authors advance the theory that the lysis is due to a union of saponin with the cholesterol assimilated by the bacteria during sensitization. They call attention to the parallelism between saponin bacteriolysis and saponin hemolysis.

Journal of Biological Chemistry, Baltimore

94:329-611 (Dec.) 1931. Partial Index

*Two Factors Influencing Serum Calcium and Inorganic Phosphate of Rabbit. E. F. Dupré and Eugenia Semeonoff, Edinburgh, Scotland. —p. 341.
*Mineral Metabolism During Involution of Simple Goiter. E. J. Baumann, Sarah Kurland and Nanette Metzger, New York.—p. 383.
*Acid-Base Balance in Animal Nutrition: IV. Effect of Long Continued Ingestion of Acid on Reproduction in Swine, Rats and Rabbits. A. R. Lamb and J. M. Evvard, Ames, Iowa.—p. 415.
Chemistry of Lipoids of Tubercle Bacilli: XXIV. Analysis of Acetone-Soluble Fat of Bovine Tubercle Bacillus. Marie Louise Burt and R. J. Anderson, New Haven, Conn.—p. 451.
Id.: XXV. Composition of Phosphatide Fraction of Timothy Bacillus. Mary C. Pangborn and R. J. Anderson, New Haven, Conn.—p. 465.
*Calcium Salts of Bone. L. Jean Bogert and A. B. Hastings, Chicago. —p. 473.
Preparation of Vitamin C Concentrates from Lemon Juice. J. L. Svirbely and C. G. King, Pittsburgh.—p. 483.
Preparation and Storage of Vitamin C Concentrates from Lemon Juice. F. L. Smith 2d and C. G. King, Pittsburgh.—p. 491.
Relationships Between Structure of Saturated Aliphatic Alcohols and Their Inhibiting Effect on Liver Esterase. D. Glick and C. G. King, Pittsburgh.—p. 497.
Pipet for Handling of Whole Blood Samples, for Use with Van Slyke Gasometric Apparatus. G. M. Guest, Cincinnati.—p. 507.
Animal Calorimetry: Influence of Phlorhizin Glycosuria on Metabolism of Dogs After Thyroidectomy. Margaret Dann, W. H. Chambers and G. Lusk, with assistance of J. Evenden, New York.—p. 511.
Estimation of Galactose in Blood and Urine. V. J. Harding and G. A. Grant, Halifax, Canada.—p. 529.
Method for Determination of Hexose-Monophosphate in Muscle. G. T. Cori and C. F. Cori, Buffalo.—p. 561.
Influence of Epinephrine and Insulin Injections on Hexosephosphate Content of Muscle. C. F. Cori and G. T. Cori, Buffalo.—p. 581.

Calcium and Inorganic Phosphate of Serum.—Dupré and Semeonoff state that cabbage fed to rabbits causes a marked rise in the serum calcium and a simultaneous fall in the inorganic phosphorus concentration. Bran and oats fed to rabbits cause a marked rise in the inorganic phosphorus of serum with a simultaneous fall in calcium. A rise in calcium is accompanied by a fall in inorganic phosphorus, and vice versa. There is a definite diurnal variation in the serum calcium and phosphorus levels of the rabbit. The evening calcium level is from 1 to 1.5 mg. per hundred cubic centimeters higher than the morning sample. The change in phosphorus is of about the same magnitude. In view of this diurnal variation, a rise or fall of less than 1.5 mg. per hundred cubic centimeters in serum calcium and phosphorus is of no significance.

Mineral Metabolism in Goiter.—Baumann and his associates studied the relation of mineral metabolism of rabbits to the physiologic state of the thyroid. In thyroid deficiency (caused by feeding rabbits with cabbage until a palpable goiter is produced) there is a retention of calcium, magnesium and phosphorus. The conversion of the thyroid to the normal colloid-containing state by the administration of a small amount of iodine restores the balance of these elements by increasing the amounts excreted. The metabolism of sodium, potassium, chlorine and sulphur is relatively uninfluenced by thyroid deficiency.

Acid-Base Balance.—Lamb and Evvard fed swine for three generations (three and a half years) on a ration of yellow corn, tankage, corn germ meal, and alfalfa meal plus from 200 to 300 cc. of normal sulphuric acid solution daily. No deleterious effects on growth, well being or reproduction were observed in the group receiving the acid. No unfavorable effects on the composition of the bones of representative animals were found. Three generations of rats were produced with no apparent ill effect and with optimal reproduction on a satisfactory grain, casein and acid salts ration which contained a total potential acidity of 15 cc. of normal acid solution per hundred grams of feed. Rabbits tolerated a ration containing a net acidity up to 5 cc. of normal solution daily for each animal, the basal ration being optimal in composition and physical character for rabbits. When the net acid allowance was increased above 5 cc. of normal solution, the rabbits soon succumbed. These animals excreted nearly all the acid as acid phosphates in the urine, having only slight ability to mobilize ammonia for neutralization of the acid.

Calcium Salts of Bone.—Bogert and Hastings made analyses of the untreated outer and inner portions of bone, and of bone cortex treated in the following ways: extracted with alcohol, with ether, with water, hydrolyzed with sodium hydroxide, digested with pancreatin, and ashed at temperatures low enough to avoid loss of carbonates. These preparations were analyzed for their total calcium, inorganic phosphorus, and carbonate content. The inner and outer portions of bone did not differ materially as to inorganic composition. The relative proportions of the inorganic constituents in bone cortex were undisturbed by the different processes to which it was subjected, except that ashing caused a considerable loss of carbonates unless special precautions were taken. Commercial preparations of tertiary calcium phosphate as purchased contain appreciable but variable amounts of carbonate and hence are not uniform in composition. The residual calcium: phosphorus ratio of two samples analyzed was the same but was slightly lower than the theoretical calcium: phosphorus ratio for that salt. In all the bone preparations, the residual calcium: phosphorus ratio approximated that for tertiary calcium phosphate. The calcium phosphate: calcium carbonate ratio varies between 2 and 3, but approximates 2 in all preparations in which the bone substances have been relatively little altered by treatment.

Journal of Immunology, Baltimore

21: 417-523 (Dec.) 1931

Studies on Serologic Reactions of Flagella of Bacillus Typhosus. J. Craigie, Dundee, Scotland.—p. 417.
Immune Iso-Agglutinins in Rabbits: Second Paper. P. Levine and K. Landsteiner, New York.—p. 513.

Journal of Lab. & Clinical Medicine, St. Louis

17: 211-296 (Dec.) 1931

*Decompensated Hypertensive Heart. J. R. Lisa, New York.—p. 211.
*Relation of Jaundice to Outcome in Lobar Pneumonia: Indications for Trial of Bilirubin Therapy. N. W. Elton, Boston.—p. 216.
Effect of Ultraviolet Irradiation on Glucose Solution. L. M. Dillman, Chicago.—p. 236.
*Studies in Alimentary Canal of Man: IX. Calculation of Gastric Volume. W. A. Sommerfield, Cleveland.—p. 240.

Decompensated Hypertensive Heart.—Lisa presents the microscopic lesions of the heart in a series of ten cases of hypertension with congestive cardiac failure. They consist of miliary necroses with cellular reaction. The histogenesis of the lesions is traced. They apparently have a close relationship to the clinical syndrome and offer a pathologic basis for it.

Relation of Jaundice to Outcome in Lobar Pneumonia.—Elton made serial studies in 224 cases of lobar pneumonia by the daily determination of the icterus index, van den Bergh aqueous (direct) reaction and the quantitative serum bilirubin estimation, and demonstrated that serum icterus manifested in one or all of the three tests is pathognomonic of the disease. The summation of the observations relating to the pneumonic icterus clearly indicates that a therapeutic trial of bilirubin is the logical conclusion of the investigation, particularly since the pigment is believed to be nontoxic when injected intravenously. Although the analysis of the icterus of lobar pneumonia may seem complex because of its relation to the presence or absence of fluid and because of the differences between the white and the black races, the application of these observations to the therapeutic test is simple enough, and may be stated as follows: 1. In the white race one should inject a quantity of bilirubin sufficient to cause the icterus index to pass 16.6 but not to exceed 30, regardless of the presence or the absence of fluid. 2. In Negroes, and when negroid reactions occur in the white race, the icterus index 100 must be attained. By preliminary studies correlating the serum icterus with the physical signs, the addition of surplus bilirubin may be contraindicated in many cases. Additional data on the bilirubin content of pleural fluid, obtained early in the course of the disease, in its relation to the outcome, should be secured.

Studies in Alimentary Canal of Man.—Sommerfield believes that current estimates of gastric volume suffer from defective technic since gastric behavior is influenced by the introduction of unusual foreign substances into the stomach and of unusual conditions into the experiment. To obviate these difficulties of technic a method is presented which requires simply an anteroposterior roentgenogram and a determination both of the obliquity of the stomach and of the distance of the magenblase from the anterior abdominal wall. Simpson's rule, as applied to the volume of a tube of unknown curvature, provides a fairly reliable method of estimating stomach capacity under the particular conditions of the author's small meal experiments. It also provides a ready measure of the changing volume as contents become transferred to the small intestine. The diminishing gastric volume shows rhythmic fluctuations which find their explanation in other studies. Estimated by this method an illustrative 5 ounce (150 cc.) buttermilk meal in a healthy young adult stomach bespoke an average volume of only 643 cc. when measured over the first thirteen minutes after swallowing. Since this is greater than the amount swallowed, the secretion of gastric juice must account for the difference.

Medical Journal and Record, New York

134: 573-624 (Dec 16) 1931

Early Diagnsis of Minimal Pulmonary Tuberculosis. W. F. Dutton and N. C. Prince, Amarillo, Texas.—p. 573.
Galvanism. J. U. Giesy, Salt Lake City.—p. 579.
Diathermy in Pneumonia. H. E. Stewart, New Haven, Conn.—p. 581.
Interpretation of Roentgenograms of Bone Diseases. A. H. Trynin, Brooklyn.—p. 582.
Bromide Intoxication. J. C. Doane and J. G. Weiner, Philadelphia.—p. 585.
Recent History of Light Therapy. H. Goodman, New York.—p. 588.
Modern Conception of Deafness. H. Hays, New York.—p. 589.

Medicine, Baltimore

10: 373-536 (Dec.) 1931

*Primary Carcinoma of Lung: Bronchiogenic Cancer: Clinical and Pathologic Study. B. M. Fried, Boston.—p. 373.

Primary Carcinoma of Lung.—From the material studied by Fried it is apparent that a reasonable classification of bronchiogenic cancer based on clinical features is as superfluous at the present time as that based on their gross anatomic structure. Indeed, even the "typical cases" in the author's arbitrary classification display such an amazing diversity that one rarely can find a group of patients with similar symptomatology. Nevertheless the "typical" category of bronchiogenic cancer does not represent as a rule any unusual diagnostic difficulties, provided of course one keeps in mind the fact that the disease is far from being uncommon. The symptomatology is briefly recapitulated thus: The onset of the disease, which manifests itself in most instances in persons between the ages of 50 and 70, is as a rule insidious. A grunt or a cough productive of a mucoid or a mucopurulent sputum intimately mixed or only streaked with blood is one of the first complaints. Not infrequently there occurs also a small hemoptysis. A sharp stabbing pain in the chest is a characteristic sign noted by all observers and is looked on as a cardinal symptom which other diseases rarely give. Loss of weight, appetite and strength, pleural effusion, dyspnea and cyanosis occur in all likelihood in the more advanced stages of the disease. Many patients show an asymmetry of the thorax with the narrowing of the affected side; in a high percentage of them there are clubbed fingers and sometimes a diffuse osteo-arthropathy. Many of the author's patients also showed a kyphosis. The physical signs found in the chests of these patients are rather scant and not characteristic. This holds equally true for most chronic pathologic conditions of the lungs. The interpretation of the signs is evidently based on the same laws as that of other intrathoracic diseases. The difficulty in making promptly a correct diagnosis is due to the similarities existing between this disease and a number of other chronic pulmonary diseases. In fact there is not a single "irrefutable" symptom or a group of symptoms which is not common to tuberculosis, to an abscess of the lungs and to a bronchiogenic cancer. Indeed, most observations are to the effect that the last condition is usually confounded with phthisis or with a pulmonary abscess. In certain instances it may be mistaken for an aneurysm of the aorta, and in two of the author's cases it was interpreted as a pulmonary infarct. In the differential diagnosis one must also consider Hodgkin's disease (seen usually in younger individuals), forming a rounded mass confined to the mediastinum or as diffuse pulmonary lymphogranulomatosis, a thymoma, and a teratoma of the lung. In a few cases echinococcus cyst and actinomycosis of the lung have been observed giving symptoms and signs analogous to those found in primary carcinoma of the bronchus. Unlike the "typical" cases, the diagnosis of an atypical case is met by insurmountable difficulties. Of particular interest are those cancers that have shown early metastases to the central nervous system, in which instance the metastatic cerebral lesion simulated a rapidly growing glioma, causing such acute intracranial symptoms as to make an intracranial operation an emergency procedure.

Missouri State M. Assn. Journal, St. Louis

28: 571-644 (Dec.) 1931

Present Concept of Chronic Appendicitis. A. E. Hertzler, Halstead, Kan.—p. 571.
Analysis of 1,000 Appendixes from Viewpoint of Pathologist. F C. Helwig, Kansas City.—p. 574.
Headache: Its Cause and Relief. M. F. Arbuckle, St. Louis —p. 579.
Maxillary Sinusitis in Children. O. S. Gilliland, Kansas City.—p. 587.
Basal Metabolism in Middle Ear Catarrh. C. S. Smith, Springfield. —p. 591.
General Practitioner: Guardian of Public Health. J. Lingenfelder, Hermann.—p. 593.
Massive, Spontaneous Hemorrhages into Vitreous Humor, and Iritis of Both Eyes, Accompanying Schönlein-Henoch's Syndrome: Case. J. W. Love, Springfield.—p. 595.
Varicose Veins: Technic of Treatment by Injection Method. P. S. Lowenstein, St. Louis.—p. 597.
Persistent Hereditary Edema of Legs: Milroy's Disease. J. H. Jennett, Kansas City.—p. 601.
Pustular Stomatitis of Streptococcus Hemolyticus Origin: Cases. J. P. Costello, St. Louis.—p. 605.

Nebraska State Medical Journal, Lincoln

16: 457-492 (Dec.) 1931

Some Factors Influencing Surgical Mortality and Morbidity. J. W. Duncan, Omaha.—p. 457.
Cardiac Hypertrophy. G. L. Pinney, Hastings.—p. 464.
Further Observations on Treatment of Pneumonia. S. A. Swensen, Oakland.—p. 468.
Suggested Etiology of Erythromelalgia. W. L. Shaw, Hastings.—p. 472.
Postmortem Cesarean Section with a Living Child. F. D. Ryder, Grand Island.—p. 474.

New England Journal of Medicine, Boston

205: 1177-1222 (Dec. 17) 1931

Spontaneous Intraperitoneal Rupture of Tuberculous Bladder. B. H. Alton, Worcester, Mass.—p. 1177.
Blood Sugar Changes in Children Following Surgical Operation. R. W. Daffinee, J. Garland, Boston, and Mildred G. Gray, Somerville, Mass. —p. 1182.
An Improved Oral Method for Cholecystography. L. R. Whitaker and S. W. Ellsworth, Boston.—p. 1183.
Plastic Repair for Paralysis of Abdominal Musculature: Preliminary Report. C. L. Lowman, Los Angeles.—p. 1187.
Fixation Point in Perimetry. J. I. Pascal, Boston.—p. 1189.
Place of Science in Treatment of Criminals and in Prevention of Crime. F. Loveland, Jr., Boston.—p. 1190.
Dr. Nancy E. (Talbot) Clark: Second Woman Graduate in Medicine to Practice in Boston. F. C. Waite, Cleveland.—p. 1195.

New Orleans Medical and Surgical Journal

84: 429-512 (Dec.) 1931

Some Observations on Roentgenography of the Skull. B. H. Nichols, Cleveland.—p. 429.
Formation of Arteriovenous Fistula for Relief of Sequelae of Aortic Aneurysm. A. H. Storck, New Orleans.—p. 440.
*Treatment of Aortic Aneurysm by Method of Jugulocarotid Anastomosis. R. Matas, New Orleans.—p. 448.
Cancer Control Program. J. W. Cox, New York.—p. 455.
Surgery in the Prevention of Disease. T. E. Ross, Jr., Hattiesburg, Miss.—p. 460.
Information That Can be Furnished by Ophthalmologist. H. N. Blum, New Orleans.—p. 464.
Treatment of Excretory Portion of Lacrimal Apparatus. W. S. Sims, Jackson, Miss.—p. 472.
*Abortive Poliomyelitis: Two Cases. J. H. Musser and L. A. Monte, New Orleans.—p. 475.

Treatment of Aortic Aneurysm by Jugulocarotid Anastomosis.—Matas sees little to commend, either in theory or in practice, in the treatment of aortic aneurysm by jugulocarotid anastomosis. Medicine and surgery can still do much for these unfortunate patients, but the greatest hope for their redemption lies in the prophylaxis and treatment of the disease—syphilis (syphilitic aortitis), which is chiefly responsible for the existence of aortic aneurysms.

Abortive Poliomyelitis.—Musser and Monte emphasize the importance of recognizing poliomyelitis from the point of view of the epidemiology of the disease. The mild, abortive and unrecognized cases presumably are responsible for the spread of poliomyelitis. In questionable instances lumbar puncture should be performed promptly and even repeatedly, in order to make a diagnosis, which, while not made with the definiteness of such a condition as meningitis, in which the organisms are identified, nevertheless is substantially trustworthy in the majority of instances.

New York State Journal of Medicine, New York

31: 1499-1560 (Dec. 15) 1931

Tularemia Contracted in City of New York: Case. S. M. Kaufman, New York.—p. 1499.
Position in Physical Therapy. K. G. Hansson, New York.—p. 1504.
Human Rabies: Two Cases. G. F. Cleghorn, Mineola, L. I.—p. 1509.

Northwest Medicine, Seattle

30: 525-562 (Dec.) 1931

Clinical Amebiasis and Newer Methods of Treatment. A. C. Reed, San Francisco.—p. 525.
*Tumors Incident to and Complicating Pregnancy and Labor. A. Mathieu and A. Holman, Portland, Ore.—p. 529.
*Treatment of Varicose Veins and Varicose Ulcers. C. F. Dixon, Rochester, Minn.—p. 532.
Preoperative and Postoperative Medical Management in Cases of Diabetes Mellitus. C. H. Hofrichter, Seattle.—p. 536.
Rendering Diabetics Insulin-Free by Special Method of Feeding. I D. Inskeep, Medford, Ore.—p. 538.
*Postoperative Use of Therapeutic Pools. C. L. Lowman, Los Angeles. —p. 538.
Tuberculous Infection Among Children in State of Washington. L. P. Anderson, Philadelphia.—p. 541.
Proctologic Problems. S. Tashian, Seattle.—p. 544.
Newer Conceptions Regarding Chronic Paranasal Sinus Infections. L. B. Bouvy, La Grande, Ore.—p. 546.
Friedman Hormone Test for Pregnancy. J. F. Fiorino, Everett, Wash. —p. 548.
Spontaneous Rupture of Heart. G. P. Winchell, Eugene, Ore.—p. 550.

Tumors Complicating Pregnancy and Labor.—In a study of the case records of 2,150 pregnant women, Mathieu and Holman noted 131 tumors of the pelvic organs in 115 women. There were 10 miscellaneous tumors, 15 cervical polypi, 21 ovarian cysts, 20 vaginal cysts and 65 uterine fibroids. They believe that while the pregnant patient with uterine fibroids must be individualized, the tendency should be away from operation, because dystocia is not apt to occur, especially if the tumor is not in the pelvis. While the incidence of abortion, miscarriage, premature separation of the placenta, hemorrhage and uterine inertia is increased, too often operation will not accomplish the desired result. The very fibroid that will cause dystocia because of its position and impaction in the pelvis cannot be removed by myomectomy without disrupting either the pregnancy or the uterine integrity. For this reason the conservative treatment and the display of the best obstetric judgment in caring for patients with fibroids impacted in the pelvis or with multiple fibroids of the uterus preventing dilatation of the cervix lies in performing elective cesarean section at term.

Varicose Veins.—According to Dixon, there are various sclerosing solutions that may be used in the treatment of varicose veins. Embolic phenomena, although not entirely absent following this type of treatment, are extremely rare and much less common than following surgical procedures. There are certain contraindications to injection of varicose veins, of which hypertension, marked arteriosclerosis, and existing or recent phlebitis are important. In cases of pregnancy, treatment of existing varicosities should be administered at least with caution. The elastic adhesive bandage has been of great aid to healing of these ulcers of the lower extremities, which are secondary to varicose veins. The sclerosing method of treatment of varicose veins and kindred ulcers is not only effectual but, because the patient may be ambulatory, is of economic importance.

Postoperative Use of Therapeutic Pools.—Lowman states that underwater exercise promotes earlier return of function in operative bone and joint work than can be obtained by almost any other modality. The physiologic use of the parts affected and the rest of the body improves metabolism and hastens the healing process. Movement without spasm and joint friction is possible through a large arc. Motion and weight bearing can be accurately scaled to dosage, either separately or together. The morale in long-drawn chronic cases is greatly heightened; the hospitalization time is shortened, and economy results.

Ohio State Medical Journal, Columbus

27: 921-1000 (Dec. 1) 1931

Causes for Failure in Treatment of Asthma. M. B. Cohen and J. A. Rudolph, Cleveland.—p. 941.
Skin Grafting with Reference to Extensive Burns. H. T. Sutton, Zanesville.—p. 943.
Influence of Climate on Female Sexual Functions. C. A. Mills, Cincinnati.—p. 949.
Tonsils: Anatomy and Treatment. J. A. Lukens, Toledo.—p. 953.
Myasthenia Gravis. C. H. Bayha, Toledo.—p. 956.
Relation of Physician to Industrial Commission of Ohio. W. E. Obetz, Columbus.—p. 958.
Observations on Upper Urinary Tract Infection in Diabetics. F. G. Maurer and E. H. Hedges, Lima.—p. 960.

Oklahoma State Medical Assn. Journal, Muskogee

24: 373-424 (Dec.) 1931

Treatment of Pneumonia with Especial Reference to Glucose Therapy and Theories as to Its Probable Action. E. E. Baum, Tulsa.—p. 373.
Some Observations on Specific Therapy in Infectious Diseases. J H. Musser, New Orleans.—p. 377.
Fusospirochetal Infection of Gastro-Intestinal Tract. F. M. Duffy, Enid.—p. 380.
Complications of Treatment for Syphilis. J. Stevenson, Tulsa.—p. 385.
Cysts of Urachus: Case. L. Long, Oklahoma City.—p. 388.
Why Drain the Peritoneal Cavity? R. Grosshart, Tulsa.—p. 392.
Some Surgical Browsing. F. L. Watson, McAlester.—p. 394.
Intravenous Anesthesia with Sodium Amytal in Surgery. A. L. Blesh, Oklahoma City.—p. 396.
Extra-Uterine Gestation. J. L. Shuler, Durant.—p. 400.
Anemia: Case of Miss K. W. Langston, Oklahoma City.—p. 404.
Rare Orbital Tumor in Child (Epithelioma Adenoides Cysticum): Case. A. H. Davis and D. L. Garret, Tulsa.—p. 406.

Philippine Journal of Science, Manila

46: 537-786 (Dec.) 1931

Worm Parasites of Brown Rat (Mus Norvegicus) in Philippine Islands, with Especial Reference to Those Forms That May be Transmitted to Human Beings. M. A. Tubangui.—p. 537.
*Notes on Dengue. R. L. Holt and J. H. Kintner.—p. 593.
Resistance of Dengue Virus. R. L. Holt, W. D. Fleming and J. H. Kintner.—p. 601.
Attempted Cultivation of Mycobacterium Leprae. W. W. Oliver, W. de Leon and A. P. de Roda.—p. 611.
Somatic Segregation in Double Hibiscus and Its Inheritance. N. B. Mendiola.—p. 627.
Daytime Resting Places of Anopheles Mosquitoes in Philippines: First Report. P. F. Russell.—p. 639.
Avian Malaria Studies: III. Experimental Epidemiology of Avian Malaria: Introductory Paper. P. F. Russell.—p. 651.
Bored-Hole Latrine Equipment and Construction. C. H. Yeager.—p. 681.
Philippine Varieties of Anopheles Gigas and Anopheles Lindesayi. W. V. King.—p. 751.
Use of Antennae as Means of Determining the Sexes in Leucopholis Irrorata Adults (Coleoptera, Scarabaeidae). A. W. Lopez.—p. 759.

Notes on Dengue.—According to Holt and Kintner, there is certainly an immunity to dengue fourteen days after an attack, both to the original infecting medium and to the virus of two outside cases. Peculiarities in the behavior of attacks of dengue, two cases of which are reported, coupled with the fact that immunity to the homologous strain has been proved numbers of times, lead the authors to believe in the existence of "strains" of dengue virus. The virus of dengue was transferred from mosquito to mosquito by feeding for three transfers but was lost before the fifth transfer. There was no discoverable attenuation of the virus as a result of the three transfers. Freezing dengue serum at —7 F. for forty-eight hours did not destroy the virus, nor was it attenuated. Concentrated "immune bodies" from the serum of recovered cases of dengue do not affect the course of the disease when injected on the first day of the attack.

South Carolina Medical Assn. Journal, Greenville

27: 273-296 (Nov.) 1931

"Hyperthyroidism Following Thyroidectomy." W. H. Prioleau, Greenville.—p. 275.
Reinjection of Cerebrospinal Fluid as an Aid in Treatment of Cerebrospinal Meningitis Epidemica: Cases. L. W. Milford, Clemson College.—p. 277.
Acute Inflammatory Joint Disease. J. C. Norris, Atlanta, Ga.—p. 281.

Wisconsin Medical Journal, Madison

30: 958-1067 (Dec.) 1931

*Treatment of Peptic Ulcer with Gastric Mucin. S. J. Fogelson, Chicago.—p. 971.
Indications for Surgery in Peptic Ulcer. C. S. Williamson, Green Bay.—p. 976.
Intravenous Urography: Its Place in Urology and General Practice. H. M. Stang, Eau Claire.—p. 979.
Osteomyelitis: Study of 162 Cases Treated by Orr Method R. E. Burns, Madison.—p. 982.
Relation of Life Insurance Examiner to Company, Agent and Applicant. C. M. Gleason, Manitowoc.—p. 985.

Peptic Ulcer.—Fogelson describes experiments in which he noted that gastric mucin prepared from hog's stomach is only a mild excitant of gastric secretion. It has a high combining power. Two ounces (60 Gm.) of mucin placed in the stomach of the dog was more than sufficient to combine with the acid secreted in response to the injection of 1 mg. of histamine. When half an ounce (15 Gm.) of mucin was mixed with a pound of meat and fed to a dog, free acid did not appear in the dog's stomach throughout the period of observation of from five to seven hours. Complete relief from symptoms for varying periods of from three to twenty months and complete restoration to economic fitness were afforded to sixty-six out of sixty-eight patients with classic ulcer histories and roentgen signs of peptic ulcer by feeding them about 100 Gm. of powdered neutral gastric mucin obtained from hog gastric mucosa. As a rule, half an ounce was given at 10 a. m., and at 2, 4, 8 and 10 p. m., and in addition, from 15 to 30 grains (1 to 2 Gm.) of mucin in capsules on the hours when the large doses were not given.

Yale Journal of Biology and Medicine, New Haven

4: 119-222 (Dec.) 1931

Historical Studies on Nature and Treatment of Gunshot Wounds from *Fifteenth Century to Present Time.* T. Billroth, Berlin, Germany; Translated by C. P. Rhoads.—p. 119.
Marital Maladjustments. W. B. Terhune, Stockbridge, Mass.—p. 149.
*Electrolyte and Volume Changes in Fluids Injected into Peritoneal Cavity. A. J. Schechter, Brooklyn.—p. 167.
Review of Cases of Squamous Cell Carcinoma of Lip at New Haven Hospital from January 1, 1920, to November 1, 1931. F. W. Roberts, New Haven, Conn.—p. 187.
Blood Picture of Normal Laboratory Animals. R. A. Scarborough, San Francisco.—p. 199.

Changes in Fluids Within Peritoneal Cavity.—Schechter describes experiments in which he demonstrated that the electrolyte composition of isotonic solutions of sodium chloride, of sodium chloride-sodium bicarbonate, and of dextrose, injected into the peritoneal cavity, tends to approach the composition of edema fluid. Isotonic sodium chloride and sodium chloride-sodium bicarbonate solutions tend to be absorbed from the peritoneal cavity at a constant rate, which is almost identical for the two solutions. During the process in which the composition of the dextrose solution is being altered, the volume in the peritoneal cavity markedly increases. After the dextrose concentration has fallen considerably, absorption proceeds at approximately a constant rate. The profound changes occurring in dextrose solution suggest that it is this marked initial lack of equilibrium between this solution and blood plasma that is the underlying factor for some of the phenomena of irritation observed in its subcutaneous or intraperitoneal use.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British J. Dermatology and Syphilis, London

43: 617-682 (Dec.) 1931

Investigations into Causation of Pityriasis Rosea. M. S. Thomson and J. N. Cumings.—p. 617.

*Acute Disseminated Lupus Erythematosus: Necropsy Disclosing Acute Endocarditis but Not Tuberculosis: Case. F. D. Weidman and R. L. Gilman.—p. 641.

Ectodermal Defect Associated with Hypertelorism: Case. G. P. B. Whitwell.—p. 648.

Acute Disseminated Lupus Erythematosus.—According to Weidman and Gilman, the dermatologic changes known as acute disseminated lupus erythematosus can occur in connection with acute infectious processes and, reasonably, quite apart from tuberculous factors. This does not mean that the tubercle bacillus is incapable of provoking the same cutaneous expressions; the way is still open to demonstrate this possibility. The authors consider it regrettable that the term "lupus" was ever linked with this condition, since it connotes, particularly to the general practitioner, a tuberculous etiology. They belong in that group of dermatologists which believes that acute disseminated lupus erythematosus pathologically speaking is, in many cases at least, of the order of a chronic erythema multiforme. They thoroughly understand that this does not militate against the value which the condition has as a clinical entity (1) in relation to prognosis and (2) in being so comprehensive a process as to admit tuberculosis into the etiology. Incidentally, this concept calls up for reexamination those cases of chronic discoid lupus erythematosus which precede the acute ones, and would assign to them also a possible nontuberculous as well as tuberculous causation, provided one can be sure that the acute and chronic phases have a common causation. However, with tuberculosis so commonly complicated by acute bacterial, even suppurative states, a chronic lupus erythematosus of tuberculous causation could still be reconciled with a superimposed acute condition that was of nontuberculous causation.

British Journal of Ophthalmology, London

15: 673-736 (Dec.) 1931

*Retinal Gliomata Treated by Radon Seeds. R. F. Moore, H. B. Stallard and J. G. Milner.—p. 673.

Three Cases of Retinitis Pseudonephritica Stellata: Considerations on Pathogenesis of Neuroretinitis in General. Elena Puscariu and J. Nitzulescu.—p. 697.

Ultraviolet Ray Treatment of Trachoma. M. Harston.—p. 717.

Retinal Gliomas Treated by Radon Seeds.—Moore and his associates demonstrated that a radon seed of at least 5.3 millicuries may be inserted into the eye, and that at least five seeds, each of a strength of 3.5 millicuries, may be applied to the outside of the sclera without causing sloughing of any of the tissues. It was found that the technic of insertion and subsequent removal of the seeds did not present any difficulties. It is shown that a retinal glioma will disappear under the influence of radon seeds and that in a concrete case a glioma of moderate size not only was not increased in size twenty-two months after the commencement of treatment but was shrunken and seemed to be completely scarred.

British Medical Journal, London

2: 1073-1120 (Dec. 12) 1931

"Failed Forceps." J. E. Stacey.—p. 1073.

*Treatment of Secondary Hemorrhage After *Suprapubic Prostatectomy.* A. Fullerton.—p. 1078.

Constipation and Right-Sided Ptosis. J. V. Fiddian.—p. 1080.

*Source of Infection in Minor Outbreak of Puerperal Fever. C. G. Paine.—p. 1082.

Recovery of Vision After Twenty-Seven Years. N. Fleming.—p. 1084.

Acute Hemorrhagic Pancreatitis: Four Cases. J. W. G. Grant.—p. 1084.

Secondary Hemorrhage After Prostatectomy.—Fullerton describes a hemostatic rubber bag that differs from the Pilcher bag in being spherical instead of pear shaped. One objection to Pilcher's bag is that it enters the membranous urethra and stretches the compressor urethrae muscle, causing temporary or permanent incontinence. The improved bag, being spherical, can be made to fit accurately into the prostatic cavity and cannot enter the membranous urethra. A catheter is first passed into the bladder—a soft rubber by preference—but if this does not enter easily a gum elastic may be used. Through the suprapubic wound light forceps, such as Desjardin's gallstone forceps, are then introduced and the catheter gently felt for. As a rule the latter can be easily seized by the forceps and brought out of the wound. It may be necessary to introduce the finger to locate the catheter, but this should be avoided if possible, as it causes a good deal of pain. The urethral tube of the hemostatic bag is then pushed over the end of the catheter and secured by tying round both a piece of linen thread or any available substitute. The tube and bag are then smeared thickly with melted sterile petrolatum to facilitate withdrawal of the urethral tube and to prevent the bag from becoming unduly embedded. The catheter is then withdrawn through the urethra, bringing the bag, which is thin and collapsible, into position. The bag is then distended by filling it with water. When distended it bulges over the edges of the prostatic cavity and makes contact with the walls of the latter, so that pressure can be exerted on both by light traction at the urethral end. This pressure is kept up by attaching a weight to the tube emerging from the urethra by a piece of cord, which can be brought over the foot of the bed. The bag must not be overdistended, otherwise it will not fit snugly into the prostatic cavity but press on the base of the bladder, and may even, if large, exert injurious pressure on the ureteric orifices. The bag is kept in position for two or three days but is not finally removed until it is judged that all risk of hemorrhage has ceased. It may be allowed to collapse and remain in the bladder as a precautionary measure. Meanwhile, the urethra is irrigated by the side of the tube now acting as a tied-in catheter, silver nitrate, potassium permanganate or other suitable solution being used. This minimizes the risk of urethritis from the presence of a foreign body. This precaution the author always adopts when using the indwelling catheter. When it has accomplished its purpose, the bag may be removed easily through the suprapubic wound. To prevent infecting the bladder by drawing the exposed part of the urethral tube, which may be contaminated, back through the urethra, the bag may be cut off close to the meatus before removal.

Puerperal Fever.—Paine studied two cases of puerperal pyrexia with a view to determining the source of infection. Bacteriologic examination of the secretions of the patients and the throats of possible carriers was made and several strains of hemolytic streptococci were recovered. Possible sources of infection are discussed, and evidence of the source of infection by means of agglutinin-absorption tests is deduced. In both cases it was shown that the infecting organism was carried in the throat of a midwife who attended both patients.

Journal of Physiology, London

78: 331-443 (Dec. 17) 1931

*Relation of Gastric Function to Chemical Composition of Blood. F. L. Apperly and Muriel G. Crabtree.—p. 331.

Rate of Blood Flow Through Cyanosed Skin. J. Barcroft, A. Benatt, C. E. Greeson and Y. Nisimaru.—p. 344.

Rate of Gas Exchange Between Blood Cells and Serum. M. N. J. Dirken and H. W. Mook.—p. 349.

*Effect of Diathermy on Blood Volume. R. McIntosh.—p. 361.

Tolerance of Normal Rabbits to Intravenous Injection of Glucose. Jean Orr-Ewing.—p. 365.

*Elimination of Urea by Mammalian Kidney. J. S. Dunn, W. W. Kay and H. L. Sheehan.—p. 371.

Action of Narcotics on Conduction of Nerve Impulses from a Single End-Organ. Chiao Tsai.—p. 382.

Effect of Pulse Pressure on Coronary Blood Flow. G. V. Anrep, J. C. Davis and E. Volhard.—p. 405.

*Buffer Substances of Gastric Juice, and Their Relation to Gastric Mucus. T. C. Mitchell.—p. 427.

Gastric Function and Blood Composition.—Apperly and Crabtree describe experiments which indicate clearly (1) that gastric acidity varies with the fasting plasma bicarbonate, irrespective of how this is produced, or whether there is an acidemia or an alkalemia, and (2) that emptying time varies with the hydrogen ion concentration of the blood. The amount of acid secreted by the stomach mucosa is determined by the carbon dioxide dissolved in the plasma.

Diathermy and Blood Volume.—McIntosh noted that the passage of a high-frequency alternating current of from 200 to 350 milliamperes through a rabbit for about an hour caused a reduction of the amount of blood and plasma in active circulation. This result is independent of the heating effect of the current exerted on the body as a whole.

Urea Excretion.—Dunn and his associates determined the renal extraction ratio for urea by experiments on normal rabbits that had not received additional urea. They found that it lies between 6 and 13 per cent. In the experiments, the amounts of urea extracted per minute from the blood by the kidneys were in satisfactory agreement with the amounts of urea excreted per minute by the animals previously. The renal circulation rates found lay within the normal range, of the unanesthetized animal as determined by experiments with dyes. The renal extraction ratios found in these experiments may therefore be taken to represent the normal range for the unanesthetized rabbit.

Buffers in Gastric Juice.—Mitchell states that the buffer substances present in acid samples of gastric juice are proteins and their derivatives; in anacid samples, carbonates are present in addition. The buffers of the gastric juice are almost entirely dialyzable. The undialyzable protein has only a slight buffering power. Its digestion by pepsin does not materially increase the buffer. The buffering power of the "protein series," i. e., complete proteins, albumoses, peptones, polypeptides and amino-acids, is proportional to the numbers of amino and carboxyl groups available for combination with acid and alkali; these are relatively most numerous in the amino-acids. The buffers present in the form of polypeptides and amino-acids appear to be secreted as such.

Journal of Tropical Medicine and Hygiene, London

34: 389-404 (Dec. 1) 1931

Notes on Mosquito-Borne Disease in Southern Nigeria: II. Mosquito Intensity and Infectivity in Relation to Malaria. D. Anderson.—p. 389.
Sporotrichum Carougeaui Langeron, 1922. A. Pijper.—p. 390.
Note on Pellagra. I. Sabry.—p. 391.
Some Aspects of Colon Group of Organisms, with Especial Reference to Water Supplies of Trinidad. J. L. Pawan.—p. 391.
Minor Tropical Diseases. A. Castellani.—p. 396.

34: 405-420 (Dec. 15) 1931

Housing and Malaria. C. Lane.—p. 405.
Gas Fermentation of Erythritol by Bacteria Growing in Symbiosis: Investigation of Gas Produced. A. Castellani and M. Douglas.—p. 411.

Lancet, London

2: 1279-1334 (Dec. 12) 1931

Prognosis of Prostatic Enlargement. K. Walker.—p. 1279.
*Malnutrition Factor in Rheumatoid Arthritis. F. D. Howitt and W. F. Christie.—p. 1282.
*An Epidemic of Bulbar Type of Poliomyelitis. W. G. S. Brown.—p. 1287.

Malnutrition Factor in Rheumatoid Arthritis.—Howitt and Christie give the case histories of twenty persons with rheumatoid arthritis whom they placed on a six weeks' course of insulin and dietetic treatment while receiving physical therapy. All the patients declared that their general health had improved. Appetite was increased, and in some cases an actual aversion to food was overcome. Naturally, those who ate heartily felt better, but in every case there was also a gain in weight, amounting from 4 to 10 pounds (1.8 to 4.5 Kg.). That this general physical improvement was not due solely to increased food consumption was shown by the amelioration of those other symptoms which accompany sympathetic overstimulation. In particular, fatigue was not produced so quickly or so easily. All the patients except one felt that their joints were freer in movement and not so painful. In some, the less affected joints cleared up altogether; in others, the swelling diminished. Roentgen examination of the hands has not so far revealed any return of calcium salts or other change as a result of treatment, but if the condition of osteoporosis appeared to be no better, at any rate it was stationary and not worse.

Bulbar Type of Poliomyelitis.—Brown reports an epidemic of poliomyelitis in which all the cases were of either the bulbar or the abortive type. There was no spinal case in the epidemic. The clinical features of the prodromal or abortive cases were not such that a sporadic case could be diagnosed. The most typical features were vomiting or nausea at the commencement of a feverish attack with a slight cough. Pharyngitis was present in every case; the child did not feel particularly ill and appeared to have recovered by the third day. Bulbar involvement developed on the third or fourth day of the prodromal period. There was an increased cough and the child now looked ill and perhaps frightened. A cranial nerve palsy developed on the third to ninth day of the illness, though most usually on the fourth or fifth day. The diagnosis was confirmed experimentally in monkeys by the neutralization test. Control tests were made with physiologic solution of sodium chloride and serum. As a result of the experimental work, immunity was shown to have developed in the abortive cases and in several contacts. Evidence in favor of a spread from case to case is produced. The incubation period is shown to be from seven to nine days in the cases in which a contact infection can be assumed.

Medical Journal of Australia, Sydney

2: 667-702 (Nov. 28) 1931

Surgical Considerations in Inflammatory Diseases of Brain and Its Coverings. A. B. K. Watkins.—p. 667.
Modern Conception of Meningeal Inflammation. Phyllis M. Anderson.—p. 672.
*Some Thoughts on Term Acute Disseminated Encephalomyelitis and Its Affinities. O. Latham.—p. 677.
*Goiter Prophylaxis. K. D. Fairley.—p. 681.

Acute Disseminated Encephalomyelitis. — According to Latham, it would seem that the striking syndrome of many islets of demyelination in the spinal cord and brain as seen in postvaccinal encephalomyelitis reveals not a disease of specific entity but a form of lesion that can occur (even if rarely) during the course of innumerable other diseases, mostly infections. Further, whether the causal agent is the germ of the particular exanthem involved or a special virus which creeps in or is inactivated for evil during that exanthem, the rôle of impaired vascular function must not be overlooked. Finally, the pathology of acute disseminated encephalomyelitis includes phenomena common to many other diseases, and even states induced by chemical means in the central nervous systems of animals.

Goiter Prophylaxis.—Fairley emphasizes the fact that, of all known diseases, simple goiter is the easiest and cheapest to prevent. Its prevention would have beneficial effects on many related disorders. Iodized table salt of a strength of 1 part of potassium iodine in 250,000 parts of salt is an effective and safe prophylactic for general use. If prophylaxis is limited to the school population, the ingestion of 5 mg. of iodine every week is effective and has no harmful effects. The use of prophylactic measures during pregnancy is of the utmost importance. The individual practitioner can play a most effective part in the prophylaxis of goiter.

South Africa M. Assn. Journal, Cape Town

5: 729-764 (Nov. 28) 1931

Stray Thoughts on Travel. E. B. Fuller.—p. 731.
Doctor and Patient. J. H. H. Greeff.—p. 735.
Medical Services in Native Areas and Training of Native Medical Practitioners. H. A. Moffat.—p. 738.
Provisional Scheme for Medical Service in Transkeian Territories. J. L. Downes.—p. 740.

Japanese J. of Obstetrics and Gynecology, Kyoto

14: 370-475 (Oct.) 1931

Lymphatic Vessels in Pregnant Uterus. M. Kutsuna and S. Ando.—p. 370.
Lymphatic Vessels in Ovarian Tumor. S. Ando and K. Narimatsu.—p. 380.
Influence of Irradiation of Hypophysis on Female Genitalia. S. Suzuki.—p. 393.
Relation Between Menstrual Periodicity and Duration of Pregnancy: III. Menstrual Periodicity and Development of the New-Born. J. Nakagawa.—p. 400.
Experimental Investigation of Effect of Roentgen Rays on Vegetative Nerve. III. Effect on Vascular Nerve (Irrigating Examination on Auricle of Rabbit). S. Suzuki.—p. 405.
Id.: IV. Histologic Investigation of Effect of Irradiation of Inferior Mesenteric Ganglion on Female Genitalia. S. Suzuki.—p. 410.
Id.: V. Clinical Observation. S. Suzuki.—p. 416.
Relation Between Tar Cancer and Nutrition, with Especial Reference to Morphologic Change of Endocrine Glands and Principal Visceral Organs. M. Oike.—p. 421.
Functional Relation Between Growth of Tar Cancer and Reticulo-Endothelial System. M. Oike.—p. 438.
Morphologic Investigation of Reticulo-Endothelial System in Estrus, Pregnancy and Puerperium of Rabbit. M. Oike.—p. 455.
Self-Blood Injection Arresting Hemorrhage of Female Genitalia. M. Oike.—p. 461.

Archives de Médecine des Enfants, Paris

34: 645-700 (Nov.) 1931

Nem System: Its Principles and Application in Infant Feeding. G. Patey. —p. 645.
*Familial Hepatic Infantilism. L. Exchaquet.—p. 656.
Oculonasal Diphtheria with Recurrences and Tendency to Chronicity: Case. N. I. Spyropoulos.—p. 668.
Mixed Tuberculous and Meningococcic Meningitis: Case. W. Mikulowski.—p. 671.

Familial Hepatic Infantilism.—Exchaquet discusses the case histories of three children belonging to the same family, one aged 12½ years and two aged 4½ years, the latter being twins. The principal anomalies are large abdomen, hepatomegaly and subnormal physical development. Retardation of development is estimated at from one and a half to three years. In the absence of rickets or of any apparent disturbance of the endocrine system, this retardation is undoubtedly due to the condition of the liver. The author gives the three existing theories seeking to explain the relation between hepatic disturbances and infantilism and offers a modification of the third more adapted to his cases. Each child has hypoglycemia and a corresponding increase of lipoids and cholesterol in the blood, and this hypoglycemia seems to explain the retarded development through lack of carbohydrates. The liver is increased in size by an abnormal accumulation of glycogen because the production of amylase is inadequate. The condition of the children has improved on a more appropriate diet; 50 Gm. of raw liver given daily may have had some beneficial effect; epinephrine by mouth or injection gave inconclusive results.

Bull. et Mém. de la Soc. Méd. des Hôpitaux de Paris

47: 1594-1648 (Nov. 9) 1931

Fatal Hypogranulocytic Syndrome Following Sulpharsphenamine: Attempted Radium Therapy. Railliet, Delattre, Ginsbourg and Nicolle. —p. 1594.
Fatal Poisoning by Substance Used in Developing Photographs. P. Halbron, A. Bosquet and J. Tiffeneau.—p. 1596.
Scarlatinal Erythema Following Injections of Diphtheritic Serum. R. Le Clerc.—p. 1600.
*Roentgenoscopy in Adenopathy of Hilus of Lung and Cancer of Thymus. G. Caussade.—p. 1601.
Primary Cancer of Lung with Eosinophilia of Blood and Pleural Effusion. L. Bernard, J. Marie and J. Anchel.—p. 1610.
Clinical Aspect of Santenoise's Pancreatic Hormone (Vagotonic Extract) in Diabetes. F. Rathery and M Derot.—p. 1614.
*Oily Suspension of Insulin for Therapy. F. Rathery, L. Levina and M. Derot.—p. 1622.
Insulin and Dextrose in Treatment of Hepatic Insufficiency. M. Labbé and C. Zamfir.—p. 1628.
Artificial Pneumothorax and Medical Therapy in Putrid Suppurations of Lung. M. Chevki.—p. 1635.
Pure Pulmonary Amebiasis: Emetine Therapy. Dargein and Plazy.— p. 1639.

Roentgenoscopy in Adenopathy of Hilus of Lung and Cancer of Thymus.—Caussade reports his observations on a woman, aged 25, with a primary cancer of the thymus which appeared in the roentgenogram as a large, deep-seated spherical, dextrolateral opacity occupying the anterosuperior part of the thorax. Ordinarily this condition appears in patients past 50. The tumor was latent a long time and was not revealed until four and one-half months before death. The clinical picture was characterized at first by dysphagia and afterward by an esophageal (cancerous) stenosis. The tumor is purely destructive in contrast to simple hyperplasia (hypertrophy of thymus and goiter); the result is compression and deviation or forcing back of the organs. The latter can help differentiate the malignant processes from the benign processes. The author calls attention to the possibility of infection of mediastinal tumors (primary or secondary) by organs (in his case the esophagus) normally septic. In regard to whether one can recognize by roentgenography a cancer of the thymus when the tumor is situated laterally and whether extirpation can be performed, the author asserts that in the first case one deals only with presumptions, and in the second case the intervention is possible and the tumor can be enucleated only when the operation is performed early. However, toleration and the prolonged latency of the neoplasm permit it to develop to a considerable degree and to invade and cancerize the esophagus before the appearance of clinical signs.

Oily Suspension of Insulin for Therapy.—Rathery and his co-workers assert that their therapeutic results with insulin suspended in oil have been indefinite and extremely inconstant. Insulin in oil is absorbed but often not completely, and the quantity absorbed varies for the individual and in the same individual at different times. This method of medication often fails and is sometimes dangerous, especially when absorption is abrupt and massive. The danger of abrupt and massive absorption prevented the authors from continuing their researches and using larger doses at less frequent intervals. The authors believe their results contraindicate the use of insulin in oil; they do not believe that the oily suspension of insulin can replace the aqueous suspension.

Journal de Chirurgie, Paris

38: 625-784 (Nov.) 1931

Technic of Parathyroidectomy. M. Chifoliau and A. Ameline.—p. 625.
*Rôle of Hyperparathyroidism in Certain Osseous Dystrophies and in Ankylosing Polyarthritis. M. H. Welti.—p. 633.
Medullary Compression by Vertebral Angioma and Coexisting Extradural Angioma. J. Jiano, D. Grigoresco and D. Vasiliu.—p. 652.
Perforations of Gastroduodenal Ulcers into Free Peritoneal Cavity: Twenty-Five Cases. R. Chabrut.—p. 658.

Hyperparathyroidism in Osseous Dystrophies and in Ankylosing Polyarthritis.—Welti states that hypocalcemia is due to hypoparathyroidism as hypercalcemia is due to hyperparathyroidism. But although functional disturbances of the parathyroids modify the calcium content of the serum, it does not follow that hypocalcemia increases the calcium content of the bony tissues: osteomalacia may coexist with tetany. Hypercalcemia is experimentally produced at the expense of the bones and raises the question of whether certain osseous dystrophies with loss of calcium in man are not caused by hyperparathyroidism, which would justify parathyroidectomy. Many reports state that hypertrophy of the parathyroids is the rule in osteitis cystica fibrosa, and anatomic, clinical and therapeutic facts given by the author tend to prove that this hypertrophy is the cause of the disease, although certain reserves have to be imposed because the results are not uniform or complete with parathyroidectomy and most of the patients have not been followed long enough to allow of a definite conclusion. In rickets the rôle of the parathyroids is secondary only. In osteomalacia coexistant with tetany, the cause is hypoparathyroidism. Osteitis deformans can be ruled out. In ankylosing polyarthritis, relief by parathyroidectomy is doubtful and justified only in the presence of hyperparathyroidism. The author concludes (1) that parathyroidectomy is useful in osteitis cystica fibrosa and in selected cases of ankylosing polyarthritis, and that a preliminary biopsy is advisable in the first mentioned disease even when the diagnosis appears evident; (2) that parathyroidectomy should be proposed as the logical treatment of disorders of the bones and the joints secondary to hyperparathyroidism, which is diagnosed by reduced muscular tonus, reduced electrical irritability of nerves and muscles, presence of generalized pains in the bones, elevation of the calcium content of the blood, and excessive elimination of calcium in the urine. Two methods of quantitative analysis of the calcium content of the blood serum are appended.

Paris Médical

2: 401-412 (Nov. 14) 1931

*Pathogenesis and Surgical Treatment of Angina Pectoris. P. Mauriac and P. Broustet.—p. 401.
Acute Ataxia of Malarial Origin. G. Sykiotis.—p. 409.

Pathogenesis and Surgical Treatment of Angina Pectoris.—Mauriac and Broustet discuss angina pectoris with regard to the syndrome caused by irritation of the extracardiac plexus, the aortic syndrome, the intramyocardiac syndrome, the pressure reflexes, the anatomy of the heart and the principles underlying surgical intervention. They assert that surgical intervention gives encouraging results. The operative risk does not exceed 10 per cent. Sixty per cent of the patients show improvement ranging from appreciable diminution of the crises to their complete disappearance. In 30 per cent of the cases the results are fair. However, even in the fortunate cases one cannot hope to bring the heart back to its full activity; the lesions of sclerosis, myocarditis and aortitis still remain. But the suppression of pain and the crisis itself with all its dangers is an accomplishment. Bedridden patients have been rendered active. Some surgeons report the results lasting five or six years. But no one designates the number of these successes or failures. The various workers do not define sufficiently what they consider are successful surgical interventions, the actual functional state of the heart, the physical capacity of the patient after recovery or the operative mortality. The authors advise that physicians determine, by all clinical and physical means at their disposal, the state of the myocardium before prescribing surgical intervention.

Presse Médicale, Paris

39: 1589-1604 (Oct. 31) 1931

*Tuberculous, Hydropigenous Nephritis and Lipoid Nephrosis. L. Bernard and J. Paraf.—p. 1589.
Eczemas: Tegumentary Dystrophies in Venous Diseases. G. Delater. —p. 1591.

Tuberculous, Hydropigenous Nephritis and Lipoid Nephrosis.—Bernard and Paraf do not believe that lipoid nephrosis is a distinct nosologic entity. Anatomically, the degenerative epithelial lesions, with fatty infiltration of the tubules, and the inflammatory lesions of the glomeruli and the connective tissue are similar to nephritis; clinically, nephrosis is characterized by edema, massive albuminuria and an absence of chloride and nitrogen retention. The humoral syndrome, which according to German workers distinguishes lipoid nephrosis, includes the presence of double-refractory bodies in the urine and especially hyperlipoidemia with diminution of proteins and inversion of the serum-globulin relationship. However, the morbid picture is not always so regular. There are great variations in symptoms, evolution, course and complications of the disease that do not help to individualize it. The authors assert that syphilis and pneumococcus infections have been found as part of the syndrome, and frequently the same anatomoclinical symptoms are met in tuberculous patients; whereas the humoral syndrome characteristic of nephrosis is found more or less completely in hydropigenous nephritis associated with tuberculosis, and the same nephropathies are demonstrated at necropsy. The authors describe three personal observations in detail. Their studies prove that hydropigenous nephritis, with or without lesions showing amyloid degeneration, is often traced to tuberculosis. Hydropigenous nephritis occurs, on the one hand, in confirmed tuberculous patients; on the other hand, it occurs as a primary disturbance without recognizable cause—it is not until a later time that biologic reactions, clinical manifestations or examinations at necropsy prove the tuberculous origin. The prognosis and treatment should not be modified because of the presence of a lipoid humoral syndrome. The prognosis should be dominated by the gravity of the tuberculous infection and the intensity and nature of the renal impermeability.

Revue Française de Pédiatrie, Paris

7: 539-682, 1931

Phenylethylhydantoin in Child Neuropathology. Suñer.—p. 539.
Chlorides, Urea, Alkali Reserve in Dehydration of Nurslings. G. Phélizot.—p. 560.
Iron in Child Nutrition. A. Wallgren.—p. 596
Cervical Adenitis in Course of B C G Vaccination. Smilya A. Kostić-Yoksić.—p. 607.
*Pneumothorax Therapy in Nontuberculous Pulmonary Diseases in Children. S. Popowski and R. Stankiewicz.—p. 619.
*Aseptic Purulent Pleurisy in Pneumonia and Bronchopneumonia in Children. R. Stankiewicz.—p. 629.
Cytologic Changes in Cerebrospinal Fluid in Vitro. B. Tassovatz.—p. 638.
Syphilis as Etiologic Factor in Bronchiectasis in Children V. Mikulowski.—p. 651.
Clinical Teaching in Physiology and Pathology of Diseases of the New-Born. Marthe Erlich.—p. 669.

Pneumothorax Therapy in Nontuberculous Pulmonary Diseases.—Popowski and Stankiewicz observed 130 cases of nontuberculous bronchopneumonia during a period of two years. They review ten of these cases (three instances of deep-seated pulmonary gangrene, six of bronchopneumonia, one of bronchiectasis) in which artificial pneumothorax therapy was used and draw the following conclusions: Artificial pneumothorax is an auxiliary method in the treatment of bronchopneumonia. It should not be used in any but exceptional cases: the indications and contraindications should first be determined. Pneumothorax therapy is indicated in deep pulmonary gangrene, unilateral bronchopneumonia complicated or uncomplicated by interlobar exudate, unilateral bronchopneumonia accompanied by dyspnea and cyanosis, slow chronic bronchopneumonia with tendency to bronchial dilatation, and beginning bronchiectasis. Pneumothorax therapy is contraindicated in bronchopneumonia with bronchitis of the opposite side and abundant expectoration. The age of the child, cyanosis and dyspnea are not contraindications.

Aseptic Purulent Pleurisy in Pneumonia in Children.—Stankiewicz reviews the various theories found in the literature with respect to pulmonary effusions in general and aseptic purulent extravasations in particular. The pathogenesis of aseptic pleurisy is not clear. It is found that in certain pathologic conditions of the lung (pneumonia, pulmonary congestion) and in pulmonary congestion consecutive to traumatism, in the infarcts, there appears a pleural complication in the form of purulent pleurisy. In aseptic effusions, the bacteriologic examinations are negative. Pleural puncture gives a yellowish, serous, bloody or purulent fluid; usually this purulent fluid is either white or yellow. Through decantation a fibrinous milky coagulum is formed. Centrifugation produces an abundant precipitate. Cultures as well as the inoculations into guinea-pigs are negative. Cytologic examination of the effusions is characteristic: there is a predominance of intact polymorphonuclear neutrophils, which are similar to those in the circulating blood and which have a homogeneous protoplasm and well stained nuclei with a distinct contour. When the disease lasts several days, the pleuritic fluid clears, and lymphocytes or eosinophils replace the original polymorphonuclear neutrophils. The character of the pleural fluid may vary at different times and the cytologic formula may sometimes also be mixed and include neutrophils, lymphocytes, desquamated endothelial cells, and eosinophils. Eosinophilia is frequent (sometimes to 60 per cent). It is rare that an aseptic effusion becomes septic. Aseptic effusions contain neutrophils that are intact and similar to the white cells of the blood. In protracted effusions, the cells are altered and the pleural fluid then contains half dead white cells. During a period of two years the author observed thirty-seven patients with ordinary pneumonia and eighty-nine patients with bronchopneumonia; 9 per cent of these had an aseptic effusion. The authors draw the following conclusions: The pleura plays a part in pulmonary congestion (pneumonia and bronchopneumonia) in children up to 3 years of age. Aseptic nontuberculous effusions are found in pneumonia as well as in bronchopneumonia in children. The effusions have a characteristic cytologic formula. In most instances they are small, benign and transient. The recognition of these exudates is important in prognosis and treatment.

Archivio Italiano di Cirurgia, Bologna

30: 233-360 (Nov.) 1931

Traumatic Paracondylic and Para-Epicondylic Ossifications of Knee. S. Bistolfi.—p. 233.
*Human Biliary Calculi and Their Absorption in Gallbladder of Dog. A. Mirolli.—p. 314.
Cholecystitis Due to Appendicitis. G. Lino.—p. 332.

Human Biliary Calculi and Their Absorption in Gallbladder of Dog.—Mirolli, confirming the experiments of Labes, obtained changes in the volume and the weight (fairly rapid and fairly conspicuous) of nonsterile human biliary calculi introduced into the gallbladder of the dog, sometimes normal and sometimes pathologically changed (not taken into account by Labes). He obtained also a diminution of weight, although slight, of biliary calculi, of the same chemical composition and same derivation, kept for two months at a constant temperature of 40 C. in dog bile collected from a biliary fistula. There was, however, such a marked difference between the changes in the calculi introduced into the gallbladder of the dog and those observed in the calculi kept in vitro in dog bile that, giving due allowance for the different chemical composition of normal bile and of fistular bile and for other considerations, he assumes that in determining the changes in weight and volume of the human biliary calculi introduced into the gallbladder of the dog there must be some cause involved that is associated with the living organism, which natually does not permit an experimental repetition of the phenomenon. He is inclined to postulate a true absorptive action peculiar to the mucosa of the bladder.

Clinica Medica Italiana, Milan

62: 1007-1104 (Nov.) 1931

*Action Exerted by Solution of Pituitary and Insulin on Water Exchange Between Blood and Tissues and on Secretion of Urine. G. Pellegrini. —p. 1007.
Syphilis of Respiratory Apparatus, with Especial Reference to Pulmonary Localizations. P. Gerli.—p. 1045.

Action of Solution of Pituitary and Insulin on Water Exchange Between Blood and Tissues. — Pellegrini concludes from his researches that solution of pituitary exerts in cases of diabetes insipidus an evident action on water exchange between the blood and the tissues and also on the secretion of urine. The action of solution of pituitary on water exchange between the blood and the tissues varied in different cases. In two cases it provoked an increase of hydremia and a mobilization of the water reserves of the tissues. In another case it provoked a diminution of the hydremia and an increase of the water reserves. In another case it had no evident effect on hydremia. It reduced or retarded in every instance the concentration of the blood. In the tests on sodium chloride it was found to diminish the dilution of the blood. The action exerted on diuresis in the tests on the water exchange varied in different cases. In two cases, in connection with an increased hydremia there was observed an increase of urinary secretion. In one case there was a notable reduction of the diuresis, and in the last case there was no evident action. In the concentration tests, solution of pituitary always reduced the diuresis in evident manner. In the tests on sodium chloride it induced a reduction of urinary secretion in only one case; in the other cases it had no evident action. In the case in which, in connection with the administration of solution of pituitary there was observed a notable reduction of urinary secretion, there was a marked increase in the specific gravity of the urine. In the cases in which reduction of urinary secretion was not observed or was slight, the increase in the specific gravity of the urine was absent.

Pediatria, Naples

39: 1265-1320 (Dec. 1) 1931

*Value of Search of Tubercle Bacillus in Gastric Contents of Children. E. Zambrano.—p. 1265.
Behavior of Sedimentation Speed of Red Corpuscles in Tuberculous Children with Various Forms of Tuberculin Anergy During Tuberculin Shock. I. Gatto.—p. 1274.
*Fat-Soluble Vitamins A and D in Treatment of Infectious Diseases of Childhood. M. Flamini.—p. 1282.
A Case of Fetal Inclusion. F. Rolando—p. 1298.

Search for Tubercle Bacillus in Gastric Contents of Children.—Zambrano searched for the tubercle bacillus in the gastric contents of fifty children, aged from 13 months to 12 years, with tuberculosis either clinically latent or manifested by clinical and roentgen symptoms in the lungs, serous membranes and the lymph nodes. The tubercle bacillus was encountered only eight times, and only once in children with absence of clinical signs of disease. In view of the rarity with which he found positive cases, the author considers that there is no reason for changing the conceptions heretofore held with regard to the evolution of tubercle bacilli in the infantile organism, since, with rare exceptions, tubercle bacilli are not found in the gastric juice of the infantile organism in selected cases; but he regards the method as more exact than the simple examination of the sputum.

Fat-Soluble Vitamins A and D in Treatment of Infectious Diseases of Childhood.—On the basis of the clinical observations cited, Flamini holds that the fat-soluble vitamins A and D administered in large doses exert a frankly beneficial effect on the course of infectious diseases in nursing children and in children recently weaned. The effect is in direct relation to the improvement in the local manifestations provoked by vitamin A, by its action on the inflamed mucosas (tonsils, bronchi, bladder), thereby stimulating the functional activity and the defense forces. The rapid drop and final disappearance of the fever may be due to the local curative action. It cannot be shown as yet whether vitamin A brings about the improvement in the general symptoms of the infection through an anti-infectious action or by an action stimulating the general defense forces of the organism. The improvement in blood pressure and pulse action may be due to vitamin D (administered in large doses) through the effect on the central nervous system and particularly the sympathetic system.

Rivista di Patologia e Clin. della Tubercolosi, Bologna

5: 909-1024 (Nov. 30) 1931

*Preventive Vaccination with B C G Vaccine. C. Malossi and M. Minghini.—p. 909.
Researches on Physiopathology of Collapse Therapy. M. Lucacer and S. Polizzotto.—p. 968.
Changes in Left Radial Pulse in the Course of Therapeutic Pneumothorax with Pleural Effusion and in Fibrothorax. V. Agnello.—p. 984.
Latent and Fugacious Tuberculous Exudative Serositis, the Cause of Cryptogenic Fever. C. Cantieri.—p. 990.
Simple Apparatus for Heating Insufflation Gas in Artificial Pneumothorax. F. Galmozzi.—p. 993.

Preventive Vaccination with B C G Vaccine.—Malossi and Minghini affirm, on the basis of observations on 801 infants vaccinated at birth by mouth with the B C G vaccine and followed up for from one to five years, that this vaccine, if administered according to the prescribed method, is harmless. With regard to the protection afforded by the vaccine, they think it has an immunizing effect but that the effect is so weak that it is rarely revealed by skin reactions to the various types of tuberculin. One cannot rely on a constant and sure protective action of the method. Their researches leave untouched the question as to the harmfulness and the immunizing potency of the B C G vaccine when it is administered by the parenteral route.

Archivos Arg. de enf. d. Ap. Digest., etc., Buenos Aires

7: 5-163 (Nov.) 1931. Partial Index

*Incomplete Chronic Obstruction of Ileum and Multiple Ulcers. A. M. Centeno, D. Brachetto-Brian and P. A. Maissa.—p. 13.

Incomplete Chronic Obstruction of Ileum and Multiple Ulcers.—Centeno and his collaborators state that tuberculosis, cancer and occasionally syphilis have been considered, the causal factors of incomplete chronic obstruction of the small intestine. He reports a case in which all the conditions mentioned were absent, while the clinical symptoms and the roentgen examinations were characteristic of obstruction. At operation the presence of an inflammatory process (diffuse enteritis), causing a stricture at two different levels in the ileum at a distance of 24 cm. from each other, was discovered. The circumference of the ileum, which in normal segments was 6 cm., was 2.5 cm. and 4 cm., respectively, at the strictures, increased immediately above each stricture to 10 and 19 cm., respectively, and then became normal again. The mucous membrane of the narrowed areas was the seat of many simple ulcers. A segment of 70 cm. of the small intestine, including the narrowed ulcerous and dilated areas, was resected and an end-to-end anastomosis and appendectomy were performed. The patient did well. The roentgen examination made one month later showed complete reestablishment to normality in the intestinal tract. The author believes that the inflammation and the formation of ulcers were in his case the causal factors for the development of the strictures.

Archivos Españoles de Pediatría, Madrid

15: 641-704 (Nov.) 1931

*Congenital Stenosis by Hypertrophy of Pyloric Muscle in New-Born Infants. M. Macein.—p. 641.
Syphilis and Tuberculosis in Infants: Mortality During First Year of Life. A. Romeo Lozano.—p. 661.

Congenital Stenosis by Hypertrophy of Pyloric Muscle in New-Born Infants.—Macein reports two cases of congenital stenosis by hypertrophy of the pyloric muscle in new-born infants aged 22 days and 5 weeks, respectively. The author advises thus: When the cause of vomiting and of loss of weight in new-born infants cannot be ascertained, the time of retention of the food in the stomach should be immediately determined, in order to substantiate or to rule out the diagnosis of stenosis caused by hypertrophy of the pyloric muscle. Lavage of the stomach, by proving the presence of food in the stomach, and roentgen examination of the stomach, by determining the retention of the barium meal given to the infant, are the only reliable methods to reach an early diagnosis of the condition. Early operation is the only hope to save the child's life for this type of stenosis. The roentgen examination made after the operation proves the normal passage of the food from the stomach to the large intestine. It is possible that stenosis caused by hypertrophy of the pyloric muscle is responsible for the death of many children who die with a syndrome of vomiting and undernutrition, and in whom a correct diagnosis is not made.

Clínica, Barcelona

8: 225-256 (Nov.-Dec.) 1931

Some Treatments of Pulmonary Tuberculosis. Mac-Dowel.—p. 225.
Possibility of a Biologic Treatment for Acute Poliomyelitis or Infantile Paralysis. C. Torres Umaña.—p. 232.
Clinical Case. G. Burbano.—p. 240.
*New Procedure for Treatment of Certain Hemorrhoids. A. Valerio.—p. 241.

New Procedure for Treatment of Certain Hemorrhoids.—Valerio recapitulates briefly some of the causes and treatments of hemorrhoids and presents a new procedure by which he has obtained twelve cures without any local or general complications. He uses any ordinary anoscope and any syringe with a needle of one centimeter. After infiltrating the base of each hemorrhoid with a 1 per cent solution of procaine hydrochloride, he injects into the submucous tissue, and then above the border of the base, 2 cc. of a freshly prepared and well shaken 2 per cent solution of trinitrophenol in double distilled water. Injections are repeated every week until three or four of the hemorrhoids are sclerosed, when the remaining ones disappear by a slow process of resorption. Patients are instructed to put themselves on a milk and vegetable diet for one week before the first injection and to insert every night a suppository of bismuth oxyiodide and resorcinol sulphonate or quinine and urea hydrochloride. The author recommends that particular care be taken to avoid the anterior commissure of the anosphincteric segment in order to respect the prostate gland. Sterilized petrolatum is the only dressing.

Prensa Médica Argentina, Buenos Aires

18: 731-780 (Nov. 10) 1931

Focal Infection: Otitic Septic Foci. M. R. Castex.—p. 731.
*Carcinoma of Roentgen Technician Cured by Radium Therapy. A. H. Roffo.—p. 742.
Solar Syndrome. J. Rodriguez.—p. 751.
Therapeutic Action of Medical Drainage of Bile Ducts. H. A. Zunino.—p. 753.

Carcinoma of Roentgen Technician Cured by Radium Therapy.—Roffo reports a case of ulcerated carcinoma from roentgen rays in the hands of a roentgenologist. The condition followed a slow evolution for ten years, causing definitely cancerous lesions and ulcers with great infiltration of the tissues. On account of the condition the patient was unable to work or to dress himself. Treatment with carbon dioxide snow, the high frequency current, and ultraviolet rays, failed. Radium therapy applied for about two months gave satisfactory results. The dose varied in the several lesions of the hands, the elbows and the fingers from 11 to 23 millicuries in each treatment given through a 1 mm. platinum filter. The radium therapeutic apparatus was retained "in situ" for periods which varied from 72 to 192 hours in each treatment. The lesions are cured, the hands are normal (with the exception of the scars left by the lesions) and the patient is able to work. Recurrences have not appeared one year later. The curative process of radium therapy is absolutely painless.

Deutsches Archiv für klinische Medizin, Berlin

172: 113-128 (Dec. 8) 1931

Significance of Enlarged Q Deflections in Lead III of Electrocardiogram. F. A. Willius.—p. 113.
Modification of Chronaxia by Fatigue, Massage and Application of Warmth. H. Landecker.—p. 120.
*Blood Pressure Reflex and Hypertension. H. Klink.—p. 135.
*Experimental Investigations on Metabolic Disturbances in Pellagra and Their Modification by Insulin. O. Kauffmann-Cosla, C. Parhon-Stefânescu and O. Vasilco.—p. 145.
Tables for Calculation of Basal Metabolism. A. W. Elmer and M. Scheps.—p. 154.
*Differential Diagnostic Significance of Acid Soluble Phosphates in Blood in Comatose Conditions. R. Meier and E. Thoenes.—p. 160.
Precipitation Phenomena in Synovial Fluid. D. H. Kling.—p. 165.
Rufus of Ephesus on Anamnesis. A. von Mentzingen.—p. 174.
Ulcerating Atherosclerosis of Large and Medium-Sized Arteries with Multiple Embolization of Skin and of Urinary Bladder. S. Perlroth.—p. 191.
Chronic Cardiac Lung in Intense Anthracosis. P. Preuschoff.—p. 198.
Metabolic Investigations in Cystinuria. E. Meyer.—p. 207.

Blood Pressure Reflex and Hypertension.—Klink shows that the increase in blood pressure following compression of the upper arm during blood pressure tests is a generalized hypertension due to reflex action. This blood pressure reflex develops in the majority of patients with hypertension, especially in older patients, aged 60 or over, and also in patients with essential hypertension and renal insufficiency. Entirely different were the observations on young persons with hypertension but without other disease symptoms, for in these the reflex hypertension was absent. Electrocardiographic tests revealed that compression of the upper arm may produce changes in the auriculoventricular conduction system.

Metabolic Disturbances in Pellagra and Their Modification by Insulin.—In the introduction, Kaufmann-Cosla and his associates review the various theories of the pathogenesis of pellagra and especially Goldberger's studies, which indicated that pellagra is a metabolic disorder in which there exists a disturbance in the equilibrium between sugar, protein and fats and which can be prevented and cured by vitamin B. The authors' own investigations on the pellagra problem are summed up as follows: 1. In patients with pellagra there exists a serious disturbance in the general metabolism which manifests itself in dysoxidative carbonuria. 2. There is an increased elimination in the urine of the intermediate products of the sugar metabolism; namely, of acetic aldehyde and of lactic acid. 3. Insulin reduces the pathologically increased elimination of dysoxidative carbon, acetic aldehyde and lactic acid to normal values. 4. The metabolic disturbance involves primarily the carbohydrate group. 5. The pathologic changes of the urine, and the elective action of insulin on the general metabolic disturbances of pellagra patients justify the assumption that pellagra is closely related to avitaminosis, particularly to B avitaminosis.

Diagnostic Significance of Acid Soluble Phosphates in Blood in Coma.—Meier and Thoenes report that in true diabetic coma there is a reduction in the difficult hydrolyzable but acid soluble phosphoric acid esters. Inorganic phosphate is usually within normal limits and the entire acid soluble phosphates are correspondingly reduced. If in diabetic coma the inorganic phosphate is increased, a simultaneous uremic disturbance must be assumed. In uncomplicated uremia the inorganic phosphate is always considerably increased and the difficult hydrolyzable esters are reduced only in cases with marked hydremia; accordingly, the entire acid soluble phosphate is normal or increased. If in comatose conditions with simultaneous glycosuria and acetonuria there are normal phosphate fractions, it should be considered that a diabetic coma is not the only cause. If in comatose conditions with glycosuria and acetonuria the inorganic phosphate is increased, but the esters and the entire acid soluble phosphate are normal, diabetes is not the only cause of the condition but it is probable that a uremic disturbance is the cause of the comatose condition.

Deutsche medizinische Wochenschrift, Leipzig

57: 2131-2168 (Dec. 18) 1931. Partial Index

*Treatment of Hay Fever by Desensitization. K. Hansen.—p. 2131.
Incipient Hepatic Insufficiency. H. Staub.—p. 2133.
Changes in Ankle Joint of Athletes. F. Heiss.—p. 2138.
Congenital Luxation of Hip Joint and Its Influence on Course of Labor. F. Schrenk.—p. 2139.

Treatment of Hay Fever by Desensitization.—Hansen admits that although theoretically a strictly specific desensitization is advisable, its practical application is extremely difficult. He therefore tried the efficacy of a mixed extract, which contains the pollen of the most common varieties of grass, which in Germany are the main cause of hay fever. With this extract he effected complete freedom from symptoms in 16 per cent of the cases, considerable improvement in 40 per cent, moderate improvement in 20 per cent, and failure to improve in 24 per cent of the cases. This proves that for the majority of hay fever patients the mixed extract is satisfactory. A strictly specific treatment is necessary only in those cases in which, according to the anamnesis and to the cutaneous reactions, pollen from plants other than grasses are the cause, or pollen from such grasses not included in the mixed extract. For patients that are refractory to the ordinary treatment the author recommends either desensitization with larger doses or the so-called chronic desensitization.

Klinische Wochenschrift, Berlin

10: *2329-2376* (Dec. 19) 1931

Clinical Evaluation of Specific Changes in Blood in Tuberculosis. R. Klingenstein.—p. 2329.
Clinical Aspects of Mitral Stenosis on Basis of Quantitative Digitalis (*Strophanthin*) *Therapy*. W. *Gosmann*.—p. *2332*.
*Experiences with Gänsslen's Injectable Liver Extract in Treatment of Pernicious Anemia. F. Meythaler.—p. 2336.
Experimental Studies on Influence of Potassium Salt Mixtures on Growth and Development. E. Remy and A. Müller.—p. 2338.
Purpura Following Lumbar Anesthesia. F. Rost.—p. 2341.
Milk Hygiene. M. Klimmer.—p. 2342.
Treatment of Pyuria in Nurslings by Means of Soy Diet. Mader.—p. 2346.
Closure of Hepatic Veins and Its Significance for Pathogenesis of Terminal Pulmonary Edema. P. Huebschmann.—p. 2350.
Idem. L. *Hess*.—p. *2350*.
Schick Reaction and Serum Action. A. Hottinger and E. Lorenz.—p. 2351.
Differential Diagnosis of Multiple Myeloma and of Osteitis Fibrosa Generalisata with Especial Consideration of Calcium Metabolism. A. *Jores*.—p. *2352*.

Injectable Liver Extract in Treatment of Pernicious Anemia.—Meythaler gives the clinical histories of nine patients with pernicious anemia, who were treated only with injectable liver extract. The treatment produced favorable results in all cases. However, secondary anemias could not be influenced by the injectable liver extract. In regard to the dosage, it is stated that relatively small quantities are sufficient. In the beginning 2 cc. is injected daily, and this has the therapeutic effect of 500 Gm. of fresh liver in oral administration. Later, from one to two injections every week may be sufficient, depending on the blood status. The injection is especially valuable in patients who have an aversion to oral liver therapy. It also makes blood transfusions unnecessary.

Medizinische Klinik, Berlin

27: *1777-1812* (Dec. 4) *1931*

Nonsurgical Therapy of Glaucoma. R. Salus.—p. 1777.
Significance of Gymnastics for Women. H. Sellheim.—p. 1780.
*Fat Diet and Carbohydrate Tolerance. D. Adlersberg and O. Porges.—p. 1783.
Iodine Allergy in Thyrotoxicosis. G. Wolfsohn.—p. 1788.
Fatal Gastro-Enteritis with Enormous Increase in Rest Nitrogen. N. Leitner.—p. 1789.
Cystinuria with Bilateral *Nephrolithiasis*. H. Steinitz and L. *Remen*.—p. 1791.
Lime Rain in Ocean. R. *Francé*.—p. *1792*.
*Simple Method for Quantitative Determination of Sugar in Urine. L. Dinkin.—p. 1793.

Fat Diet and Carbohydrate Tolerance.—Adlersberg and Porges call attention to the fact that until recent years fat was one of the main substances in the diabetic diet, and the proteins and carbohydrates were restricted. The authors were able to show, however, that reduction of the carbohydrate intake accompanied by increase in the fat intake impairs the carbohydrate tolerance. In recent years a change has taken place in the nutrition of diabetic patients in that a greater amount of carbohydrates is permitted; however, the advice for a limitation of the fat intake has not been heeded. As a new proof for the diabetogenic action of a fat diet the authors cite their tests on normal persons, which revealed that if a larger amount of fat is given on the day preceding a sugar tolerance test the sugar tolerance is considerably reduced; moreover, tests on partially pancreatectomized dogs and observations on diabetic patients prove the same. As additional evidence that a large fat intake is a causal factor in diabetes, the authors cite the observation that diabetes is most frequent in countries in which the per capita consumption of fat is greatest. In the last part of the article they show that the essentials of their dietary treatment of diabetes are often misunderstood in that some designate it as a protein diet. However, the reason why comparatively large quantities of protein are given to obese diabetic patients is its great satiating value. However, the antidiabetic factor of such a diet is not the high protein content but rather the deficiency in fats. The large amount of protein is often given because insulin treatment is to be avoided, and because of this, not sufficient carbohydrates can be given. In these cases the high protein content of the diet is only a makeshift; it would be better to give large quantities of carbohydrates with simultaneous insulin therapy.

Simple Method for Quantitative Determination of Sugar in Urine.—Since modern treatment of diabetes necessitates constant control of the patient's urine, and since the fermentation method as well as the polarimetric procedure is too complicated for use by the general practitioner, Dinkin recommends Nylander's test for the quantitative determination of the sugar content of the urine. He states that the length of time that is necessary for a complete black coloration (in sufficiently diluted solutions) indicates with considerable exactitude the percentage of dextrose.

Wiener Archiv für innere Medizin, Vienna

22: 1-160 (Dec. 1) 1931

Pathology and Clinical Aspects of Aneurysms of Coronary Vessels of Heart. *R. Boller* and *A. Goedel*.—*p. 1*.
*Massive Salicylate-Alkali Method in Treatment of Acute Articular Rheumatism. D. Danielopolu, C. Dimitrin and C. Berenger.—p. 13.
*Etiology of Funicular Myelitis. S. Kúnos.—p. 29.
*Prognosis of Primary Chronic Articular Rheumatism. J. Schneyer.—p. 43.
Adams-Stokes *Syndrome*, *Cheyne-Stokes Respiration* and Retrograde Conduction in Case of Complete Heart Block. S. H. Averbuck.—p. 49.
Characteristics of Endemic Cretinism in Pamir. A. Korovnikov.—p. 85.
Special Manifestations of Hypophyseal Tumors. J. M. N. van Goor and G. A. Schaly.—p. 101.
Rupture of Heart with Fatal Outcome. A. I. Petrowych.—p. 127.
Disturbance in *Blood Sugar Regulation* in *Descendants* of Diabetic Persons. E. Flaum and A. Schlesinger.—p. 131.
Cause of Accelerated Sedimentation Speed of Erythrocytes in Older Persons. F. Lasch.—p. 155.

Massive Salicylate-Alkali Method in Treatment of Acute Articular Rheumatism.—Danielopolu and his associates maintain that the only specific remedy for acute polyarthritis rheumatica is salicylic acid. No other preparation is quite as effective. Sodium salicylate causes, even when given in small doses, manifestations of intolerance such as tinnitus aurium, gastric disturbances, impairment of the general condition, restlessness and occasionally tachycardia, dyspnea and semidelirium. In testing the alkali reserve and the p_H content of the blood and of the urine it could be proved that the intolerance manifestations are due to a marked acidosis. It was also found that all these manifestations disappear within twenty-four hours if the patients are given the same doses or still larger ones of sodium salicylate with an addition of the double amount of bicarbonate for each gram of salicylate. Simultaneously with the disappearance of the symptoms, the acidosis decreases, and the alkali reserve of the blood may even be in excess of that previous to the treatment. The usual doses of sodium salicylate (4, 6, 8 Gm.) are insufficient. If such doses are given, the fever and the articular manifestations persist and cardiac localization is almost certain. The rheumatic infection attacks the myocardium if the salicylate treatment is insufficient, but it becomes manifest much later in the form of an advanced degeneration of the myocardium, which borders on insufficiency. Valvular lesions are rarer and are always accompanied by lesions of the myocardium. In the massive salicylate-alkali method one adheres to the following rules: 1. The doses of sodium salicylate have to be large, up to 25 Gm. daily. 2. The treatment has to begin early and the doses should be increased rapidly up to the maximum. The maximal dose has to be continued until all symptoms have disappeared, and the reduction of the doses should be gradual and slow. 3. The maximal daily dose for cases of medium severity is 15 Gm. and for severe cases 25 Gm. 4. The treatment has to be continued for weeks and even for months according to necessity. 5. The total daily dosage should be divided so that a portion is administered at intervals of two hours during the day and at intervals of four hours during the night. 6. Each portion should be dissolved in 100 Gm. of water, and after every administration nourishment should be given. 7. An antiketogenic diet is advisable (especially sweets and farinaceous foods). 8. Alkalization of the organism is to be effected by giving quantities of sodium bicarbonate double those of salicylate. In enumerating the advantages of the massive salicylate-alkali method, the authors stress that this form of medication does not cause gastric or nervous disorders, even if it is continued for longer periods. Only in rare cases do extrasystoles develop.

Fever and the articular symptoms yield more readily to this than to any other method. New cardiac lesions are also influenced to a certain extent and the massive salicylate-alkali method is the only one that prevents the development of chronic cardiac lesions.

Etiology of Funicular Myelitis.—Kúnos shows that acute or chronic gastro-intestinal disorders are of great significance in the etiology of funicular myelitis. The various forms of these disorders of the intestinal tract usually have one symptom in common, namely, gastric achylia. Autointoxication as a result of changed conditions in the resorption is therefore assumed as the pathogenic factor of funicular myelitis. This assumption is closely related to Seyderhelm's theory of pernicious anemia. But the author extends this theory in that he maintains that the unknown noxa assumed by Seyderhelm not only causes anemia but also influences the nervous system, and the result of this influence is funicular myelitis.

Prognosis of Primary Chronic Articular Rheumatism.—In the introduction, Schneyer deplores the confusion in the nomenclature of rheumatism. He points out that cases of polyarthritis deformans and of infectious arthritis are sometimes listed under rheumatoid arthritis. He thinks that it is due to this confusion that focal infection is still considered as a cause of primary chronic articular rheumatism. That this is not the case, at least as far as the tonsils are concerned, he was able to prove by the ineffectiveness of tonsillectomy. A review of the literature indicates that the prognosis is generally considered as unfavorable. However, the results of the after-examination in 140 patients convinced the author that the prognosis is not as unfavorable as is often believed. He gained the impression that early and persistent treatment may produce favorable results. Since the prognosis of a disease is largely determined by the therapy, he discusses the treatment. Because the etiology of primary chronic articular rheumatism is still unknown, a causal or specific treatment is not possible. In the majority of the patients on whom the author made his studies, the usual physical and medicinal treatments had been employed. Most effective was radium therapy, given in the form of inhalations or of radioactive applicators, and also roentgen therapy. These treatments reduce the painfulness, improve the function of the joints and improve the general condition. However, there are also cases that are refractory to radium therapy. Foreign protein therapy is effective in many cases, provided the correct technic is employed. In order to prevent muscular atrophy, deformation of the joints and ankylosis, electrotherapy and massage should not be neglected. To counteract the anemia and the general weakness, which often develop in the course of primary chronic articular rheumatism, the author recommends arsenic preparations. He advises against weakening dietary treatments and rejects tonsillectomy. During the exudative stage he considers immobilization advisable, but he warns against leaving on a fixation bandage too long. He recommends the use of appliances that protect the joint but, by rendering possible suitable exercise, prevent ankylosis and muscular atrophy. In the conclusion the author stresses once more that the unfavorable prognosis assumed by many for cases of primary chronic articular rheumatism is not justified but that by a suitable therapy many patients can be cured.

Zeitschrift für klinische Medizin, Berlin

118: 507-750 (Dec. 4) 1931

Ketonemia in Injuries of Liver. F. Stroebe.—p. 507.
Ketonuria: Attempt to Test a Partial Function of Liver. P. Clerc.—p. 532.
Retention of Urea Due to Extrarenal Factors. G. Jung.—p. 546.
*Therapy of Colitis Gravis by Production of Anaphylaxis and by Blood Transfusion. H. Kalk.—p. 560.
Functional Tests of Heart. G. Nylin.—p. 584.
Minute Volume of Heart During Balneologic Treatment. A. Bornstein, G. Budelmann and S. Rönnell.—p. 596.
Functional Test of Central Vasomotor Apparatus in Persons of Various Ages. W. Raab.—p. 618.
Herpes Zoster and Its Relations to Internal Organs. W. Mann.—p. 630.
*Estimation of Pulmonary Tuberculosis on Basis of Sedimentation, Blood Picture and Coagulation. O. Weltmann and F. Paula.—p. 644.
Reticulo-Endothelium and Coagulation of Blood. G. von Gerlóczy and K. Szöke.—p. 663.
Coagulation of Serum. O. Weltmann and C. V. Medvei.—p. 670.
Behavior of Blood Sugar Under Influence of Sea and Air Baths. J. Catrein.—p. 688.
Case of Acute Megakaryoblastic Leukemia and Remarks on Acute Leukemia. J. von Boros.—p. 697.
Action of Insulin on Blood Protein Picture and Its Modification by Carbohydrates and Caffeine. M. Taubenhaus and S. Rosenzweig.—p. 719.
Method of Differential Count of Leukocytes and New Technic of Thick Film Test. F. von Assendelft.—p. 736.

Therapy of Colitis Gravis by Production of Anaphylaxis.—The term colitis gravis is, according to Kalk, still justified, since it is refractory to most therapeutic measures and consequently has an unfavorable prognosis. However, he found that it can be improved or completely cured if it is possible to induce by means of serum injections a marked anaphylactic reaction with cutaneous manifestations. He gives the case histories of eight patients who were treated in this manner, in five of whom it was completely effective, whereas in three cases the production of serum disease proved impossible. In the intentionally produced anaphylaxis it was also possible to make certain observations on the essentials of serum disease. The curative effect of anaphylaxis on colitis gravis could be proved not only by the clinical observations but also by roentgenologic examination of the colon, especially by the relief visualization of the mucous membrane. Transfusion of large quantities of blood also proved helpful in a number of cases of colitis gravis, eight of which are reported. However, the results were not quite as favorable as those produced with anaphylaxis. The author recommends that in colitis gravis transfusion of large quantities of blood should be tried first, and if this proves ineffective the artificial production of serum disease should be resorted to.

Estimation of Pulmonary Tuberculosis by Sedimentation, Blood Picture and Coagulation.—In summing up their observations, Weltmann and Paula state that the sedimentation reaction, the hemogram and the coagulation test are all helpful in estimating pulmonary tuberculosis. Considering the chronic course of pulmonary tuberculosis, it is evident that estimates should be based only on repeated tests and if possible on serial tests. In regard to the final outcome of the tuberculous process, the hemogram gives the most reliable information. Increased sedimentation speed, especially if it persists, indicates the necessity for careful supervision, even if the clinical manifestations of the process are comparatively slight. However, it should also be considered that it may be a false alarm. The sedimentation test is of value particularly in acute cases with slight physical signs and in not too severe chronic cases, which should be kept under observation as long as the sedimentation speed is increased. The coagulation test is still too new to permit its definite evaluation. However, in connection with the clinical aspects and with the two other methods it gives valuable information, especially about the tissue changes. A reduction of the coagulation to subnormal values indicates the prevalence of exudative processes, whereas a prolongation indicates fibrous tendencies. If the coagulation is not in accord with the clinical and the general aspects, the sedimentation reaction and the hemogram should serve as controls.

Zeitschrift für Krebsforschung, Berlin

35: 1-108 (Dec. 10) 1931

Tumors in Dogs. H. Auler and Wernicke.—p. 1.
New Limits of Life (After Studies on Virus of Rous Sarcoma and on Bacteriophages). E. Fränkel.—p. 47.
*Cancer as Disease of Entire Organism. L. T. Larionow.—p. 52.
Tumor Problem. H. Auler.—p. 63.
Antigen Nature of Rous Sarcoma. P. Geréb and Ruth Simke.—p. 73.
*Bismuth in Treatment of Tumors. P. Zadik.—p. 78.
Iron Content of Gastro-Intestinal Tract in Normal and in Tumorous Rats and Mice. H. Auler.—p. 89.
*Several Predisposing Factors in Development of Experimental Inoculation Tumors. P. Geréb.—p. 92.
Sarcoma of Tongue. H. Kudlich.—p. 99.
Influence of Cold on Transplantability of Tumors, on Blood Coagulation and on Complement Action. H. Auler.—p. 103.

Cancer as Disease of Entire Organism.—Larionow thinks that a malignant neoplasm is not merely a local disease but that it is essentially a disturbance in the regulatory system of the organism. If special cell groups are present, there develops, because of these disturbances, a physiologic isolation, and finally the cells lose their correlation capacity. The malignant neoplasms are therefore to a certain degree local manifestations of a generalized disorder. However, for the development of these manifestations it is necessary that certain local processes develop first. To consider the generalized changes in the organism merely as a "predisposition" is inadequate for the reason that these changes are a component of equal importance.

Bismuth in Treatment of Tumors.—Zadik points out that he as well as numerous other investigators has proved that water soluble bismuth compounds have a curative effect on malignant tumors. In order to understand the action mechanism of bismuth therapy of malignant tumors he made further experiments, and he gives the following summary of his observations: 1. The elective storage of bismuth in the tissue of malignant tumors is traced to the biochemical reaction of the metal with the lactic acid. This chemical union is also the cause of the specific focal reaction, which was observed following administration of bismuth compounds. 2. Application of radium E according to Kahn-Klopfer makes it possible to direct the radium action by way of the blood stream into the tumor, because this type of radium, being isotopic to bismuth, has likewise a tendency for elective storage in the tumor. 3. There is yet another possibility to bring radium to the tumor cells, namely, by combining radon with colloidal bismuth solutions. With this procedure it is possible to concentrate intensive alpha action on the tumor. 4. Radon may also be combined with colloidal dyestuffs such as trypan blue, isamine blue and bengal rose, for these substances likewise have an elective affinity and perhaps also an influence on the tumor cells.

***Predisposing Factors in Experimental Inoculation* Tumors.**—Geréb observed in experiments that the growth of tumors can be influenced by nutrition and by hormonal conditions, but he was not able to demonstrate definitely that these factors have an influence on the "taking" of inoculation tumors. A diet, deficient in vitamins and consisting mostly of neutral fats, had the greatest inhibitory influence on the growth. Gravidity and lactation likewise exerted a growth inhibiting influence.

Zentralblatt für Chirurgie, Leipzig

58: 3185-3248 (Dec. 19) 1931

Surgery of Carcinoma of Rectum. R. Goepel.—p. 3186.
Operative Results in Habitual Dislocation of Shoulder. F. Mandl.—p. 3190.
Injuries of Median Nerve Following Fractures of Elbow Joint. J. Jungbluth.—p. 3191.
*Pribram's Operation in Diseases of Gallbladder. A. Pop.—p. 3194.
Postoperative Parotitis: Its Pathogenesis, Prognosis and Therapy. J. Vigyázó.—p. 3197.
Methods, Indications and Technic in Treatment of Hypertrophy of Prostate. A. Rosenburg.—p. 3202.
Peritonitis Chronica Fibrosa Incapsulans (Zuckergussdarm). R. Hochmiller.—p. 3204.
Rupture of Spleen with Only Slight Immediate Symptoms. R. Hochmiller.—p. 3209.
Present Status of Technic and Application of Electrosurgery. H. W. Pässler.—p. 3212.

Pribram's Operation in Diseases of Gallbladder.—Pop calls attention to Pribram's operation, which was first described by Pribram in the *Medizinische Klinik* (**24:**1147 and 1187 [July 27 and Aug. 3] 1928; abstr. The Journal, Oct. 6, 1928, p. 1070). He reports the results of this operation in thirty-six cases and concludes that Pribram's operation, which is characterized by thermo-electro-coagulation of the gallbladder, and which eliminates abdominal drainage, gives good results and should be employed in all cases in which the gallbladder cannot be extirpated without injuring the bed of the liver and the surrounding organs, yet he extends the indication for Pribram's operation even further, in that he advises it for all cases in which subserous extirpation is impossible. He also states that it can be performed on patients of all ages and during an attack of gallbladder disease as well as during the interval. In summing up the advantages of Pribram's operation he mentions again the avoidance of injuries of the liver bed and the elimination of abdominal drainage, which does away with postoperative adhesions. He further stresses that the preservation of the gallbladder prevents the formation of biliary fistulas, and that the heat or the electric current destroys the infectious foci in the wall of the gallbladder and in the perivesical liver tissues. All thirty-six cases observed by the author healed without complications.

Klinicheskaya Meditsina, Moscow

9: 657-728 (Sept.) 1931

Acid Therapy in Edema. E. A. Lovitskiy and D. N. Yanovskiy.—p. 676.
Relationship Between Cholesterol Esters and Cholesterol in Hepatic Diseases. E. Pivovarova.—p. 683.
Acute Hepatitis with Ascites and Change from Acute to Chronic Hepatitis. A. L. Myasnikov.—p. 686.
*Water Tolerance Test in Study of Hepatic Function. M. Rapoport.—p. 692.
Passive Idiosyncrasy. I. S. Milman and A. S. Zelmanovich.—p. 697.
Bilirubin and Cholesterol in Duodenal Contents in Icterus. A. P. Yakovleva and L. S. Shparts.—p. 701.
*Congenital Cysts of Pancreas. M. B. Ariel.—p. 705.
*Phrenic Phenomenon in Appendicitis. V. A. Vainov.—p. 709.

Water Tolerance Test in Study of Hepatic Function.—Rapoport asserts his observations led him to conclude that the intake of 1,500 cc. of water does not influence the rate of sedimentation of erythrocytes in a normal individual. In patients with hepatic disturbances such a volume of water causes changes in the rate of sedimentation. The changes in the rate of sedimentation after overloading with water are dependent on the capacity of the liver to concentrate and can therefore be valuable in diagnosis. These are problems in changes in the physicochemical properties of the circulating blood.

Congenital Cysts of Pancreas.—Ariel asserts that pancreatic cysts may be present without manifesting any clinical symptoms during the life of the individual, and may not be discovered unless other pathologic factors have called for surgical intervention. The author describes one instance from the literature and his own personal observation. His patient was a woman, aged 64, with a clinical diagnosis of diabetes mellitus and pneumonia dextra inferior. The microscopic observations at necropsy were comparable to other instances described in literature. These cysts of the pancreas are not adenomatous but dysontogenetic cysts and similar to those found in the liver and kidneys. In accordance to other reports, microscopic examination demonstrated hemorrhagic infiltration between the cysts. Various phases of cystic development were noted: these ranged from sanguineous cysts to those designated in the literature as "cystenleichnama" or cadaver cysts. The author concludes that pancreatic cysts should be included among other congenital cysts and that the spreading cysts may interfere with pancreatic secretory function over a long period of time. One worker reports that the cysts interfered with metabolism in two breast-fed infants. Pancreatic cysts are usually silent and never cause an acute condition. Sugar in the urine of the patient described by the author was not entirely due to the described anomaly, since only one fourth of the pancreas was cystic.

Phrenic Phenomenon in Appendicitis.—Vainov based his report on the results of the examination of 197 patients, 93 of whom were subsequently appendectomized. He concludes that the phrenic phenomenon is present in the majority of patients with appendicitis. Although this phenomenon cannot be considered pathognomonic, it should nevertheless be included among the other symptoms of the clinical picture.

Ugeskrift for Læger, Copenhagen

93: 1171-1188 (Nov. 26) 1931

Epidemic Hepatitis. H. C. Gram.—p. 1171.
*Complicated and Uncomplicated Bronchopneumonias. A. Friedlænder.—p. 1174.
Case of Benzine Intoxication with Fatal Outcome. O. L. Nielsen.—p. 1178.

Complicated and Uncomplicated Bronchopneumonias.—Friedlænder's 590 cases of bronchopneumonia were mainly in children in the first two years of life and from the poorest families in Copenhagen. Of the 370 cases in the first year of life, 26.5 per cent were fatal; of the entire number, 22 per cent. He finds that factors such as nutrition and earlier diseases, especially rickets, do not seem in this relatively large material to play the part suggested by experience, and study of still larger materials is urged, to verify or reject these results, which bear on the causes of death in early childhood.

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THE SEMINAL VESICLES

NEWER INSTRUMENTAL METHODS IN DIAGNOSIS AND THE THERAPEUTIC MANAGEMENT *

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AND
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While instrumentation of the ejaculatory duct and seminal vesicles was done by Klotz as long ago as 1885, and though many serious studies have been published on the subject, it may reasonably be asserted that the precise status of the seminal vesicle as a factor in disease remains to be determined.

Our objective, therefore, in this communication, one of a series of correlated researches which may be considered in the main as preclinical studies, has been, by means of improved and rational technical procedure, to render the seminal vesicles accessible to the same kind of study as, for example, is now the renal pelvis: in other words, to bring it within the spotlight—the searching scrutiny of orderly scientific investigation.

In the majority of our cases we are able to catheterize the ejaculatory ducts with the same type of catheters as are employed in ureteral work; in many of these, to obtain seminal vesicular secretion uncontaminated with prostatic secretion; to subject this isolated seminal vesicular secretion to microscopic and cultural investigation; to make routine seminal vesiculographic exposures, and, in cases indicating it, to perform synchronous ureteropyelographic and seminal vesiculographic exposures of the same side.

To understand the subject matter better, one must thoroughly familiarize oneself with the anatomy of the parts. The ejaculatory ducts average 15 mm. in length and 1.9 mm. in circumference. As they extend backward through the verumontanum and prostate gland, the lumen becomes larger until their division into the duct of the seminal vesicle and ampulla of the vas deferens, at which point the average circumference is 4.5 mm. At the orifice, the lumen is slit-like and as they progress through the prostate gland it becomes elliptic, the greater diameter being vertical; at their termination, the lumen is circular.

The course of the ejaculatory ducts is as follows: they take a very sharp dip through the verumontanum from the urethral orifices, at an angle of approximately 45 degrees to the urethral floor. For the first millimeter and a half the ducts diverge and then converge for the next millimeter or two, until there is a thin septum of fibrous and elastic tissue separating them. This wall is easily penetrated, even though soft, flexible instruments are used. They then run parallel to each other and usually at a less acute angle through the prostate gland, ending at the termination of, or within the substance of this gland. This anatomic deviation would seem to emphasize the unsuitability of rigid instruments and to justify their replacement with flexible catheters. This separating membrane is so friable that we have observed, in one or two instances, the introduction of a number 4 ureteral catheter in one side followed by the injection of an opaque medium, to result in a vesiculogram of the opposite side.

The lumen of the duct of the seminal vesicle measures 4.5 mm., whereas the lumen of the ampulla of the vas deferens has a circumference of 3.1 mm.; noting the circumference of the ejaculatory duct at its termination, these measurements may somewhat confuse one. The similarity in size of the lumen of the ejaculatory duct with that of the seminal vesicle is accounted for by the fact that the ampulla opens on the mesial aspect of the ejaculatory duct. The duct of the seminal vesicle is a direct continuation of the ejaculatory duct, whereas the ampulla is a tributary. This anatomic fact explains why the ejaculatory duct catheter enters the first saccule of the seminal vesicle and in none of our cases was seen to enter the ampulla of the vas deferens. This is contrary to the opinion expressed by Young. The seminal vesicle in every instance was distended prior to the ampulla of the vas deferens and vas, when solutions were injected through the ejaculatory duct. In several of our cases not alone were the seminal vesicle, ampulla of the vas deferens and vas injected, but even the tubules of the epididymis were visualized. This fact does not coincide with the opinions of Belfield and Rolnick.

APPARATUS AND TECHNIC

To facilitate the catheterization of the ejaculatory duct, it is essential that an instrument be used which will direct the catheter to take the same relative course that the ejaculatory duct takes through the verumontanum and prostate gland. For this purpose the McCarthy ejaculatory duct catheter carrier, with spring wheel deflector, is necessary.[1] It is composed of three parts, the sheath, obturator, panendoscopic telescope and the ejaculatory duct catheter carrier. The sheaths are a number 24 F. and a number 26 F. whose circumference is more circular than the ordinary panendoscopic sheath. The telescope is slightly modified to admit this carrier, a new departure in urology, for with its use catheterization of the ejaculatory ducts and therapy to the seminal vesicles in indicated cases is rendered a simple procedure.

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* Read before the Section on Urology at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 12, 1931.

[1] This instrument would not have been possible but for the inventive genius of Mr. Reinhold Wappler of the American Cystoscope Makers, Inc., New York.

There are two fixed channels through which a number 4 and a number 6 F. catheter can be passed. The distal end of the carrier with its spring roller deflector directs the catheter in the same relative course that the ejaculatory duct takes through the verumontanum. The proximal end is constructed so as to permit the rotation of the telescope whereby the catheter and the ejaculatory duct orifice may be brought into view without the necessity of rotating the outer sheath, decreasing to a minimum the possibility of traumatizing the verumontanum. A soft flexible ureteral catheter is introduced into the ejaculatory duct orifice and the instrument rotated, directing the catheter toward the lateral wall of the duct, which is firmer and less easily penetrated than the thin friable septum between the two ducts. It is necessary to tilt the instrument to an angle of approximately 45 degrees so that the catheter may take a downward course, avoiding penetrating the posterior aspect of the verumontanum. After the catheter has been passed 2.5 cm. or more and the eyes of the catheter are within the lumen of the ejaculatory duct, it is reasonable to expect to obtain some of the uncontaminated seminal secretion. After a few moments, should no secretion appear, it is permissible to inject 1 cc. of sterile saline solution, which will dilute the viscid seminal secretion permitting it to flow through the catheter. At this time, should a vesiculogram be desired, a 5 cc. syringe containing 5 cc. of a radiopaque solution is connected up with the catheter by a hypodermic needle. After 1.5 cc. of the solution has been injected, the medium may be seen returning from the seminal vesicles about the catheter at the ejaculatory duct orifices. This does not signify that the seminal vesicle is completely distended. It is best to continue the injections until 5 cc. has been introduced so as to replace the vesicular secretion or become a homogeneous mixture with it casting a shadow.

To aid further in the visualization of the seminal vesicles and its ducts, the emptying of the bladder of all solutions and the introduction of 100 cc. of air is of great value. In order to avoid the overlapping of the seminal vesicles by the pubic arch, the patient's shoulders should be raised about 10 degrees from the table and the x-ray tube left in the usual position while the exposure is being made.

Various opaque solutions have been advocated for vesiculography, including colloidal silver and iodized oil. In our experience, sodium iodide, colored with a dye of either indigo carmine or methylthionine chloride, U. S. P. (methylene blue), in as concentrated a solution as 30 per cent, has been found to be most satisfactory. This solution causes little or no irritation unless extravasation occurs. In the few instances in which this has occurred, no untoward effects have been noticed. The colored solution permits one to note the escape of the solution at the orifice of the ejaculatory duct.

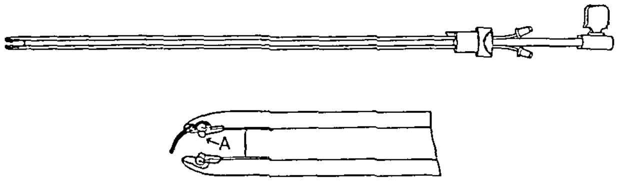

Fig. 1.—McCarthy ejaculatory duct catheter carrier: *A*, spring roller used for deflecting catheter.

Since 1925, we have studied several hundred seminal vesicles with the hope of arriving at a definite conclusion relative to determining the appearance of a normal seminal vesiculogram. It was therefore thought advisable to obtain cultures of the seminal secretion, examine this secretion microscopically, and make notations relative to the rectal observations, noting at the same time any pathologic conditions existing in the epididymis or vas deferens which would aid in diagnosing a case of seminal vesiculitis clinically.

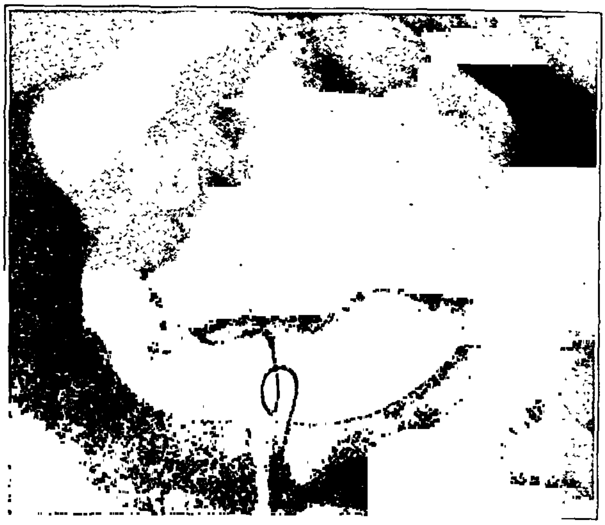

Fig. 2 (patient S.).—Catheter coiled in right seminal vesicle: seminal vesiculogram demonstrating some congenitally large saccules with abnormal dilated saccules of the ampulla.

SUMMARY OF FIFTY CASES

According to the investigation of Habute, there are definite changes in the appearance of the seminal vesicles at the various decades of life. We have vesiculograms in adults ranging from the ages of 21 to 56 but were unable to ascertain any appreciable anatomic changes referable to this expanse of thirty-six years. We have had the good fortune of seeing the seminal vesicles of the new-born and on through life up to and over the alloted three score years and ten, and noted no changes particularly significant in any decade of life other than growth.

Of the vesiculograms here presented, fourteen were normal. These conclusions were drawn from the fact that the individual saccules were definitely outlined. The ejaculatory ducts, ampulla of the vas deferens and, in some instances, even the epididymis, was seen to be injected. Cultures obtained were negative; microscopic examination of the seminal secretion was negative. The presenting symptoms were not referable to a vesiculitis.

To consider the seminal vesicle normal it is necessary to note a homogeneous distention of the individual saccules, the definite outlines of which are; demonstrated. Uncontaminated cultures obtained from the seminal vesicles were reported negative. Microscopic examination of the seminal secretion was also found negative. It was thought advisable to determine the emptying time of the normal seminal vesicle. For this purpose roentgen exposures were made one and two hours after the injection. It was found that normally the seminal vesicle was empty after two hours. This should not lead one to conclude that the seminal vesicle is constantly draining; we feel that a peristaltic contraction is produced as the result of the injection of a foreign substance, and for this reason the vesicle empties, as stated. The hypertonicity of the injected medium is probably the underlying factor here.

Congenital defects or arrests were noted in six cases.

In Sargent's report he states that the seminal vesicles are alike on the two sides and that when there is a difference in the two sides it may be concluded that a pathologic condition exists on one side. Case 45 shows a definite congenital arrest as compared to the opposite side. This patient gave no symptoms referable to disease of the seminal vesicles, nor have we clinically been able to note any pus or organisms present, nor any rectal evidences of disease. We have noted that this case, plus several specimens examined at autopsy, showed variations of the two sides.

There were six cases of a large, atonic type of seminal vesicles from which the secretion was found to be negative to culture and microscopic examination; these were in individuals presenting symptoms of spermatorrhea with a history of prolonged masturbation.

There were thirteen cases of chronic seminal vesiculitis demonstrating the contracted and dilated type.

The contracted type of chronic seminal vesiculitis seen in seven cases showed the ejaculatory duct normal, the saccules of the seminal vesicles incompletely distended, some apparently occluded and no evidence of dye present. However, some of the saccules are sharply defined with definite decrease in size. The large patulous type of chronic seminal vesiculitis again demonstrates a fairly normal ejaculatory duct. However, the individual saccules of the seminal vesicle are dilated.

One instance of a large chronic seminal vesiculitis causing definite pressure on the lower end of the ureter gave evidence of obstruction to the overflow of urine, the patient presenting symptoms referable to ureteral colic.

One case of acute urinary retention occurring in a young subject was found to be due to enormously enlarged seminal vesicles.

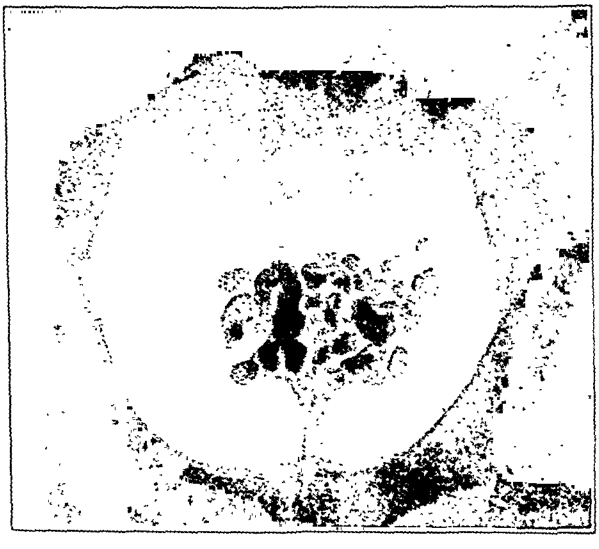

Fig. 3.—Bilateral normal vesiculogram demonstrating ejaculatory ducts, ampulla of the vasa, seminal vesicles and vasa of M. C., a man, aged 31, treated for urethritis, who complained of a slight morning urethral discharge. Smears were negative. Specimens obtained from the seminal vesicles showed living spermatozoa. No pus cells. Cultures were negative.

It is possible to have a chronic inflammatory condition causing anatomic changes in all or part of the seminal vesicles; in other words, the proximal saccules may show pathologic changes, whereas the distal saccules will be normally outlined, and vice versa. There were two cases of gonorrheal arthritis in which the vesiculogram showed changes which were interpreted as subacute seminal vesiculitis because of the fact that the vesiculograms were on the borderline with the seminal secretion containing clumps of pus.

There was one case of proved tuberculous seminal vesiculitis with abscess; this case, through discussion as to the proper interpretation, led one of us to do a vasotomy and inject our material in this manner. On roentgen exposure the solution was seen to outline the vas up to a fixed point and then extravasate into the abscess cavity, confirming the opinion that a solution in the continuity of the lumen of the vas deferens had occurred. There was an interesting case of sterility in which catheterization of the ejaculatory ducts yielded brown pigmented material in which numerous nonmotile spermatozoa were seen. When the opaque medium was injected and a vesiculogram obtained, there was a definite dilatation of the ejaculatory duct, which was due to a partial occlusion of the ejaculatory duct lumen.

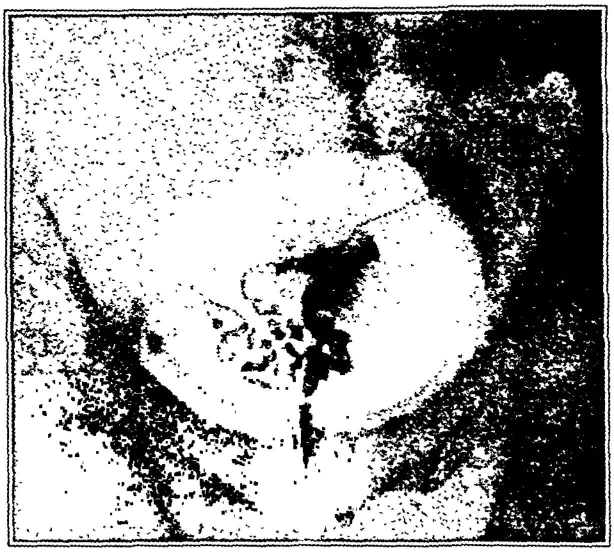

Fig. 4 (patient H.).—Congenital tubular type of seminal vesicle with evidence of chronic dilated seminal vesiculitis of the left seminal vesicle.

In twenty cases we were successful in obtaining seminal secretion for examination, and on culture a nonhemolytic streptococcus, Streptococcus viridans, Staphylococcus albus, a diphtheroid organism and Staphylococcus aureus were found. An unidentified gram positive coccus was reported on several cultures. Von Lichtenberg stated that he found a similar organism in his studies. In five cases, though pus cells were demonstrated in the smears, cultures were negative. In one case, definitely proved to be tuberculous, no organisms were seen in the secretion. We can only assume that in a good number of the negative cultures the gonococci, which should be most frequently encountered, were not obtained. This is probably due to faulty technic in the use of the culture medium.

COMPLICATIONS

In a small percentage of our patients, subacute epididymitis occurred. This usually appeared twenty-four hours after instrumentation. However, it was not as severe as the epididymitis caused by infection, and usually subsided in thirty-six hours with mere support. In none was there evidence of acute hydrocele. The epididymis itself was enlarged, tender—not acutely so—

with no evidence of accumulation of fluid in the tunica vaginalis. In no instance did this condition progress further than that of a chemical epididymitis. In no case have we observed residual nodulation.

A second complication is that of extravasation of the iodide into the surrounding tissues. The patient complained of severe pain as soon as it occurred and injection was stopped immediately. Within ten minutes after removal of the instrument, all pain had subsided and no untoward complications were noted on subsequent examination.

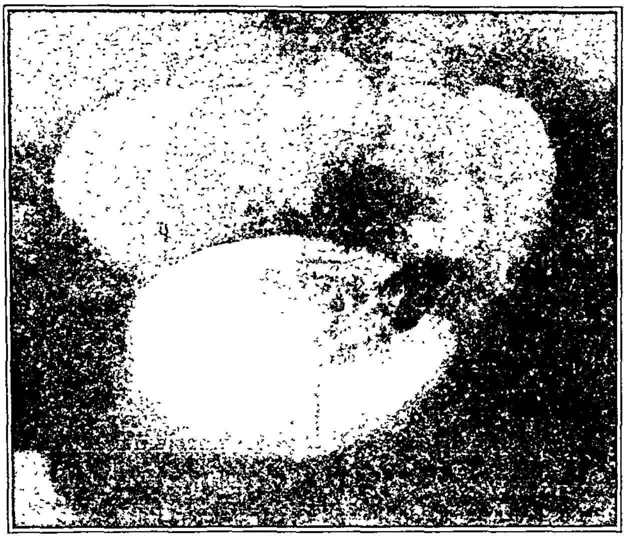

Fig. 5 (patient S. S.).—Seminal vesicle approximal sacculations definitely outlined; cephalic saccule confluent and smooth. Culture shows Bacillus coli. The epididymis is definitely outlined in this picture. Diagnosis, chronic seminal vesiculitis.

These are the only complications encountered, and it is therefore fair to assume that this procedure is a safe, rational diagnostic and therapeutic measure.

Contraindications to any type of urethral instrumentation should be considered as the only objections to vesiculography.

INDICATIONS FOR VESICULOGRAPHY

Catheterization of the ejaculatory ducts together with the collection of the uncontaminated seminal secretion, generally speaking, should be reserved for refractory cases of seminal vesiculitis not responding to the usual therapeutic measures. The specific indications are as follows:

1. Chronic arthritis—when other foci have been eliminated and the seminal vesicles are suspected.
2. Persistent chronic posterior urethritis with evidence of verumontanitis and microscopic evidence of pathologic changes in the expressed secretions.
3. Vague indefinite backaches—undetermined by the usual measures.
4. Impotentia.
5. Sterility.
6. Sexual asthenia with large palpable vesicles to determine patency of the ejaculatory ducts.

CONCLUSIONS

1. The seminal vesicles are a possible focus of infection.
2. This new ejaculatory duct catheterizing endoscope has rendered catheterization of the ejaculatory ducts a routinely feasible procedure.
3. Vesicular secretion, uncontaminated by prostatic secretion, is obtainable for chemical and bacteriologic study.
4. Seminal vesiculography is a diagnostic aid.
5. Seminal vesicular lavage is a practical procedure.
6. The ampulla of the vas deferens is lavaged when solutions are injected by any of the ejaculatory ducts.
7. Medication administered through the ejaculatory duct in some instances reached the tubules of the epididymis.
8. In cases of incomplete drainage of the vesicle, gradual dilation with small, soft, flexible bougies or catheters was of greater value than any procedure heretofore advocated.
9. The contour of the seminal vesicle is changed as the result of pathologic conditions.
10. Ejaculatory duct catheterization plus vesicular lavage definitely relieves symptoms.
11. Seminal vesiculitis may cause ureteral obstruction.

Though these studies have been basic and preclinical in character, certain interesting observations have been noted and a few experimental studies essayed. The most frequent question asked by our colleagues has been "What solution do you employ for vesicular lavage?" The answer is that we have purposely deferred this study until the completion of the present work. Incidentally, however, it has been observed on a number of occasions that obscure backache or perineal pain was completely relieved by the passage of the catheter in the taking of a vesiculogram.

In conjunction with Dr. John A. Killian, director of biochemistry, and Dr. C. Travers Stepita of our department, studies were made of the relative motility and viability of the spermatozoa. In this investigation motility was experimentally inhibited. It was then found that, by the addition of various biochemical solutions, they could be revitalized and their normal motility restored and increased.

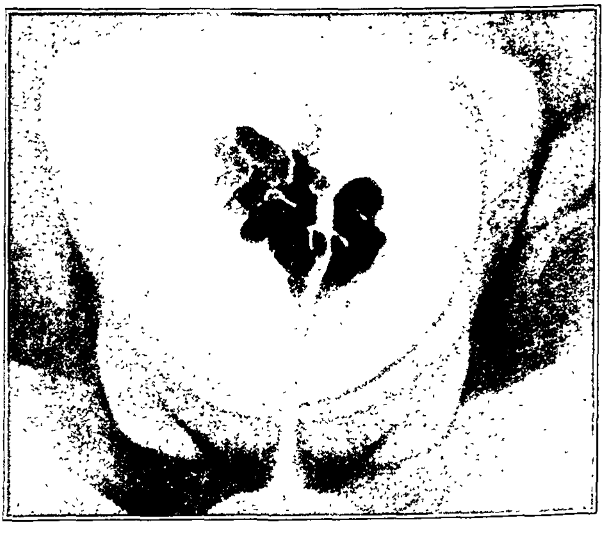

Fig. 6 (patient G.).—Chronic left seminal vesiculitis: *Bilateral vesiculogram* in a patient presenting a history of left epididymitis in whom smears show many pus cells from the left seminal vesicle. Left vesiculogram shows a failure of filling of cephalic saccule due apparently to either occlusion or pus.

From these studies it was deduced that, by the introduction of such solutions into the vesicles of the patient with sluggishly motile spermatozoa, their normal motility could be restored in vivo.

Furthermore, it was thought that through the use of these solutions, proved so favorable to the motility of the sperm, normal spermatic fluid could be diluted with such solutions, thus rendering it possible to inject this mixture directly into the vesicle. This has been carried out in a small series of patients, in some of whom normally active spermatozoa have later been recovered.

This study is of too recent origin for us to assert that fertility may thus be simulated by the azoospermic vesicle; rather is it our intention to make its technical feasibility a matter of record.

Intra-uterine instrumental insemination has, for obvious reasons, been most disappointing in its failures. This method of what might be called two-stage insemination, with its accompanying physicopsychic phenomena, holds out much of promise.

It is our conviction that, with the equipment here described, in the hands of trained instrumenteurs who are also experienced clinicians, the diagnosis and therapy of seminal vesicular conditions will be as precise as they have heretofore been empiric.

2 East Fifty-Fourth Street.

THE SEMINAL VESICLES AND THE EJACULATORY DUCTS

HISTOPATHOLOGIC STUDY *

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This gross and histopathologic study of the seminal vesicles and ejaculatory ducts constitutes one feature of a comprehensive and correlated study of these structures, carried out under the supervision of Dr. Joseph F. McCarthy, director of the Department of Urology at the New York Post-Graduate Hospital. To date, about eighty-four bladders have been subjected post mortem to careful serial microscopic examination of the region between the verumontanum and the interureteric ligament. The sections have been made transversely and sagittally, in such a manner as to include the prostate, ejaculatory ducts and seminal vesicle in their normal relationship to one another. These bladders have been selected from hundreds of necropsies, because of definite gross observations indicating acute, subacute and chronic inflammation of the entire region. An opportunity was thus afforded to study the verumontanum, ejaculatory ducts and seminal vesicles in specimens which presented frank inflammatory lesions of the posterior urethra and upper urinary tract.

Parallel with the microscopic studies of the entire posterior urethral region, gross studies of many hundreds of dissected seminal vesicles were carried out, with special reference to the incidence of gross observations of fibrous perivesiculitis. Cellodin casts of the seminal vesicle, ampulla and ejaculatory duct gave an exact method for determining the varying configuration and gross anatomy of these structures under normal, anomalous and acquired pathologic conditions. The tremendous normal variations in the form, capacity and lumen of the convoluted seminal vesicle tubule, the incidence of sacculations, and the position of the ejaculatory duct in relation to the duct of the seminal vesicle and the terminal portion of the ampulla were thus made amenable to study, making possible observations that are essential for an intelligent understanding of the normal anatomy and physiology of these structures. In the marked normal variation in gross anatomic structure revealed by these studies, numerous configurations and anomalies presented themselves, which were obviously important as predisposing factors for the development of an inflammatory pathologic condition and the subsequent course of such an involvement, once established. Although the minutiae of this study included a great amount of detail requiring separate consideration, information of clinical value was easily extracted from the mass of data possessing only academic interest.

These gross and histopathologic studies were undertaken because the pathology of the seminal vesicles has not received the study it deserves. The normal structure of the ejaculatory duct and the verumontanum has only recently been given adequate study, but the microscopic pathology of these structures has not previously received attention in keeping with the clinical interest and importance of the subject. The application of general pathologic concepts to seminal vesiculitis and inflammation of the ejaculatory duct, although sound in principle, must take cognizance of specific gross and minute anatomic structure peculiar to the region. As applied to the seminal vesicle, the chief pathologic problem is not the marked destructive suppurative involvements of the prostatic and seminal vesicular regions (which clinical experience and pathologic knowledge accept as being productive of marked tissue reaction, with permanent cicatrization at the expense of normal structure) but rather the incidence, type of reaction, chronicity and extent of involvement of these structures during the course of and subsequent to low grade chronic posterior urethritis and adnexitis. Is chronic latent seminal vesiculitis a frequent cause of morbidity? Does chronic infiltrative involvement of the seminal vesicle wall occur frequently with the ordinary forms of prostatitis and seminal vesiculitis? Does marked fibrous perivesiculitis commonly accompany chronic prostatitis and cicatricial posterior urethritis?

What are the types of pathologic response in the ejaculatory ducts, with different degrees and stages of inflammation in the posterior urethra, prostate and seminal vesicles? Does permanent or intermittent obstruction occur commonly either because of fibrous infiltration of the ejaculatory duct walls or because of congestive and edematous swelling?

The answers to these questions entail a knowledge of pathogenesis of the inflammatory involvements of the entire region. Necropsy studies of material demonstrating the different stages, degrees and types of inflammatory response in all the adnexal structures must give a more accurate conception of the entire picture than can be obtained from clinical observation alone. Nevertheless, the ideal mode of approach to the answer of these interesting problems must be by the avenue of careful gross and microscopic study of necropsy material, with an interpretation based on an extensive and profound clinical experience with the types of infection under discussion.

Clinical experience has shown that all the adnexa are closely related in their response to infectious injuries. It has therefore been taken for granted that the ejaculatory ducts must be affected by inflammatory

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* From the Department of Urology, New York Post-Graduate Medical School and Hospital.

* Read before the Section on Urology at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 12, 1931.

infiltrations similar to those that are clinically demonstrable in the contiguous structures. The ready inflammatory response of the verumontanum is perhaps the most striking picture in posterior urethroscopy, and this indirect observation, rather than instrumental or microscopic evidences, has led to the general belief that infiltrative and edematous closures of the ejaculatory ducts are not uncommon occurrences.

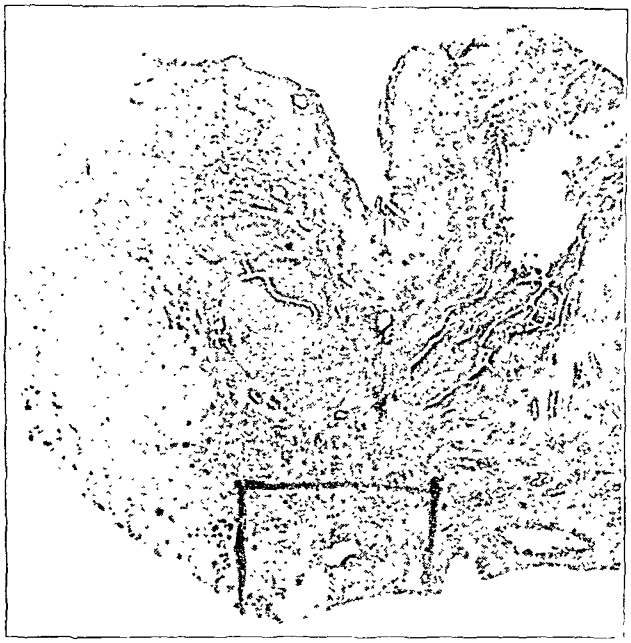

Fig. 1.—Transverse section through the prostatic urethra in a specimen showing prostatic abscess. Marked acute inflammatory reaction throughout the entire prostate, especially marked in the region of the destructive suppurative focus

The gross studies of our specimens revealed very few visual or tactile criteria for the recognition of a chronically inflamed seminal vesicle. Except in a few frank cases of perivesicular infiltration and suppuration, little gross evidence could be found on which to venture an opinion as to the probability of microscopic seminal vesiculitis. The impression of perivesicular infiltration was simulated by varying development of fibro-areolar supporting tissue, which on more careful dissection was found to have no intimate adhesive relation to the seminal vesicle. The gross impression of a thickened, sclerosed seminal vesicle wall was frequently dispelled on subsequent microscopic examination, at which time the vesicular musculature was found to be quite normal, although frequently increased in thickness. The striking difficulty encountered in the recognition of a pathologic seminal vesicle in the gross visual and tactile examination of the specimen serves to emphasize the clinical difficulties in digital rectal diagnosis of chronic seminal vesiculitis.

A marked variation in the thickness of the vesicle wall was noted; in some specimens the wall was very thin, while in others it was so thick that the gross impression was that of sclerosis. It seems noteworthy that in one instance thin distended vesicles were found associated with a frank, atonic, thin, neurogenous bladder (cord injury). However, the impression derived following the microscopic studies was that functional and neurogenous factors, rather than inherent infiltrative lesions of the vesicle wall, caused much of the marked variation in the consistency and thickness of the vesicles examined.

The most reliable gross criteria of the probable presence of chronic seminal vesiculitis were found in the prostatic urethra. Subsequent microscopic study of the seminal vesicle revealed that chronic inflammatory pathologic changes were most frequent in those cases showing frank advanced sclerosis of the posterior urethra and vesical neck, cribriform deformity in the region of the verumontanum, and dilated sclerosed, patent, prostatic ducts, with or without distortions of the size, shape and position of the verumontanum. The size and consistency of the prostate were helpful only as they served to corroborate the impression of widespread chronic inflammation of the entire region, derived from the examination of the mucous surface of the posterior urethra and bladder neck.

In not a single instance did digital pressure on the seminal vesicles fail to cause an escape of secretion through the orifices of the ejaculatory ducts. This was considered ample evidence of the anatomic patency of the ejaculatory ducts. However, it is understood that such a maneuver does not stimulate the physiologic emptying and transmission of secretion from the seminal vesicles to the posterior urethra. It does not preclude the possibility of intermittent occlusion during life occasioned by infiltrative and edematous lesions of the ducts nor does it give any indication as to functional disturbance of the musculature of the seminal vesicles.

From the foregoing it is evident that careful microscopic examination was necessary to determine the presence or absence of pathologic changes in the seminal vesicles and ejaculatory ducts in those specimens in which gross anatomic observations suggested inflammatory involvement of the entire posterior urethral region. Confusion was caused by the microscopic picture resulting from the sectioning of the irregular convoluted and sacculated vesicles as well as its ducts and ampullae of the vas. The villous arrangement of the mucosa of these organs also served to complicate the picture, and in a single section different portions of the vesicles would be cut in different planes resulting in microscopic observations which simulated obliterative changes, growing together of the villi and closed off superficial recesses. Such microscopic criteria have been erroneously described as characteristic of chronic vesiculitis. Because of the frequency of these observations without any other microscopic evidences of inflammation, it

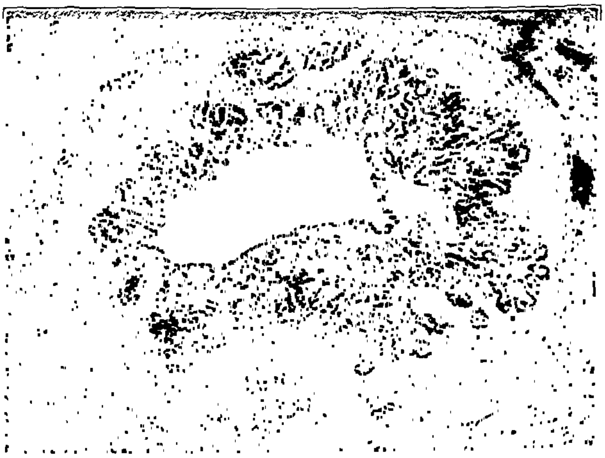

Fig. 2.—Higher magnification in the region of the ejaculatory duct (of figure 1), showing marked engorgement of the blood vessels in the wall, with large perivascular accumulations of polymorphonuclear leukocytes and plasma cells. Similar cellular exudation in the submucosa and between the mucous folds in the lumen.

was concluded that more definite criteria were necessary in order to decide that a vesicle was pathologic. The presence of polymorphonuclear, plasma or round cells in the lumen, between the mucous folds and in the submucosa, with perivascular round cell infiltration about newly formed and engorged blood vessels in the submucosa, muscularis and surrounding fascial planes, was considered necessary to establish a microscopic diagnosis of vesiculitis. Increase in fibrous tissue and variation in elastic tissue were determined by the use of differential stains.

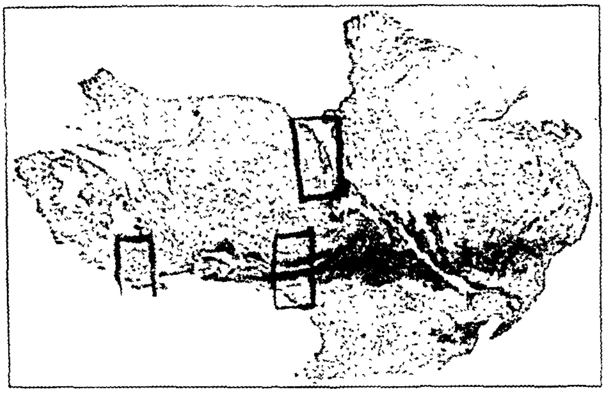

Fig. 3.—Large sagittal section showing active subacute inflammation of the posterior urethra, prostate, ejaculatory duct and seminal vesicle.

Because of their intimate anatomic and functional relationship the pathologic changes of the seminal vesicles, ejaculatory ducts, utricle and verumontanum must be considered together. Since the ejaculatory ducts course through the prostate, the pathologic changes in the latter organ cannot be ignored when one is considering the morbid changes in the former.

By far the most common form of seminal vesiculitis is produced by regional extension following posterior urethritis. Infection of the blood stream is possible, as is secondary involvement from a focus in the epididymis (tuberculosis). However, the most common form is the result of direct extension complicating infection of the posterior urethral surface. Regional extension occurs by continuity of the mucosal surface, as well as by means of lymphatic invasion. In relatively mild posterior urethritis of gonorrheal or nongonorrheal etiology, the juxta-urethral structures alone are involved. In more virulent or constantly repeated mild infection of the posterior urethra, regional extension occurs to the more remote points in the adnexal structures. Minute anatomic structure plays an important part in determining the chronicity and type of tissue reaction.

It is therefore obvious that infection of the prostate glands usually occurs concomitantly with infection of the ejaculatory ducts and the accessory gland structures. In mild inflammations, the involvement may be juxta-urethral both in the prostatic and in the seminal tracts. In more virulent infections, the inflammatory processes in the deeper recesses of the prostate and seminal vesicles cannot fail to be accompanied by similar involvement of the juxta-urethral structures. As applied to the seminal vesicle and ejaculatory duct, our studies showed that seminal vesiculitis of any severity was never seen without definite, marked inflammation of the ejaculatory duct. However, not infrequently, mild chronic surface urethral inflammation with low grade chronic prostatitis and inflammation of the glands of the verumontanum and terminal portion of the ejaculatory ducts was found with practically no microscopic evidences of seminal vesiculitis.

The material that was studied fell into the following groups:

1. Specimens which showed active gross suppurative lesions of the prostate and the periprostatic and vesicular regions.
2. Specimens which showed gross manifestations of active, acute or subacute inflammation of the urethra and the bladder neck, with indefinite gross evidences of prostatic or seminal vesicular inflammation.
3. Specimens which showed cicatricial changes of the vesical neck and posterior urethra, with patent dilated prostatic ducts, cribriform deformity of the prostatic urethra and distortion of the verumontanum. Gross evidences of vesicular induration and infiltration were indefinite and difficult to interpret.
4. Specimens which showed little change in the posterior urethra, with chronic inflammatory lesions of the upper urinary tract.

In the first group showing gross suppuration of the prostate and the periprostatic and vesicular regions, the microscopic picture was very striking. The mucosa and submucosa of the posterior urethra and vesical neck showed very marked exudative infiltration with polymorphonuclear leukocytes and plasma cells. The prostate showed marked intra-acinous and periacinous cellular exudation. Several large destructive suppurative foci were found, surrounded by areas of young fibrous tissue containing many newly formed blood vessels with marked perivascular cellular accumulations (fig. 1). Within the lumen of the ejaculatory ducts. pus, plasma and desquamated epithelial cells were found, and their walls in the prostatic portion showed definite perivascular infiltration about numerous engorged blood vessels (fig. 2). Destructive suppurative involvement of the prostate was not sufficiently close to give more marked infiltrative involvement of the ejaculatory duct walls.

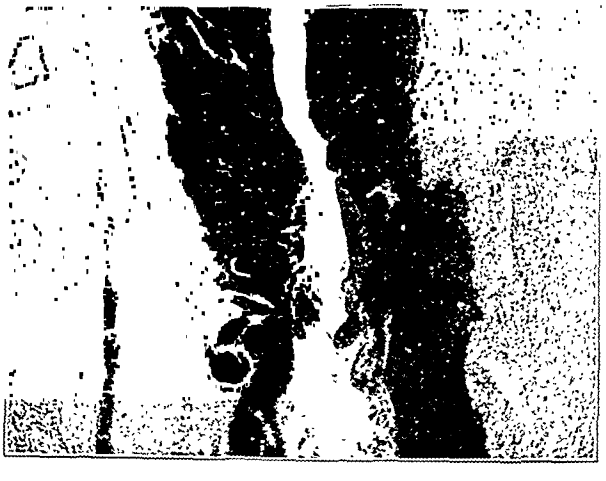

Fig. 4.—A higher magnification through the midportion of the ejaculatory duct shown in figure 3, showing marked submucosal infiltration with polymorphonuclear leukocytes and plasma cells. Blood vessels in the wall are engorged with marked perivascular infiltration. The lumen contains exfoliated epithelium and inflammatory cellular exudate.

The seminal vesicles in this group showed high grade perivesicular and vesicular infiltration by polymorphonuclear leukocytes and plasma cells, with marked perivascular cellular exudation about numerous vessels in the perivesicular tissues and muscularis. The lumen showed numerous desquamated epithelial cells mixed with many pus and plasma cells. Submucosal cellular infiltration was present but not so definite.

In the second group showing active acute or subacute inflammation of the urethra and the bladder neck, with indefinite gross evidences of prostatic or seminal vesicular inflammation, the following microscopic pictures were presented: The submucosa of the entire posterior urethra was densely infiltrated with inflammatory cellular exudate (fig. 3). Marked intra-acinous and periacinous cellular exudation was noted throughout the prostate, associated with perivascular round cell accumulations in the stroma. The verumontanum showed similar changes in its submucosa and glandular elements. The ejaculatory duct revealed marked cellular infiltration of the submucosa and muscle wall with exudation of polymorphonuclear leukocytes and plasma cells into its lumen (fig. 4). The seminal vesicle displayed corresponding inflammatory involvement of the lumen, mucosa and submucosa with less marked infiltrative changes in the vesicle muscularis. The picture presented was typically that of adnexal complication of posterior urethritis occurring by surface extension and without destructive suppurative involvement of any of the structures.

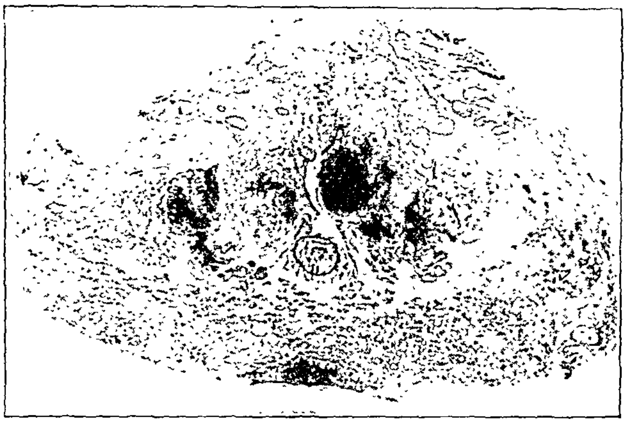

Fig. 5.—Large transverse section (low magnification) through the region of the verumontanum in a specimen demonstrating low grade chronic posterior urethritis and prostatitis. *Note fibroma of the urethral wall encroaching into the lumen.*

In the third group, numerous specimens were studied which showed cicatricial changes of the vesical neck and posterior urethra, occasionally with cribriform deformity, dilated patent prostatic ducts and distortion of the verumontanum. In these specimens the diagnosis of prostatitis was practically always verified on microscopic examination. A limited but definite proportion showed chronic inflammatory changes in some portion of the ejaculatory duct. In the less marked cases usually accompanied by mild chronic posterior urethral inflammation and low grade prostatitis the changes were frequently limited to the juxta-urethral portion of the ejaculatory duct (fig. 5). These changes consisted of engorgement of blood vessels with perivascular round cell infiltration, moderate diffuse periacinous and intra-acinous cellular exudation of the glands of the verumontanum (fig. 6). Desquamation of the epithelium of the ejaculatory duct with slight submucosal fibrous thickening was also seen. These changes became less marked as the seminal vesicle was approached, which frequently showed no infiltration of the wall and scarcely any mucosal or submucosal change.

In the more marked cases, fibrotic changes were found in the submucosa of the urethra and vesical neck. The verumontanum in these specimens showed definite acinous distortion and cystic dilatation with intraglandular and periglandular round cell infiltration. Increased congestion, perivascular round cell accumulations and deposition of fibrous tissue were noted in this structure. The ejaculatory duct in its juxta-urethral portion often showed numerous blood vessels in the wall, round cell infiltration and newly formed fibrous tissue (figs. 7 and 8). Desquamation of the epithelium with fibrous thickening of the submucosa was also noted in this structure. The duct of the seminal vesicle sometimes showed numerous engorged blood vessels with a slight amount of perivascular round cell infiltration. Elsewhere the vesicle wall displayed little evidence of chronic infiltrative inflammation. In some cases numerous round cells, plasma cells and exfoliated epithelium filled the lumen and recesses between the mucosal folds of the seminal vesicle, always with similar exudative products in the lumen of the ejaculatory ducts (fig. 9).

In several specimens with inflammation of the upper urinary tract, low grade inflammatory changes were found in the submucosa of the urethra and in the verumontanum. The ejaculatory ducts were but slightly changed and the vesicles not at all.

COMMENT

Of the eighty-four selected specimens, sixty-six showed microscopic evidence of prostatitis, sixty-two cases being chronic and four acute or subacute; concomitant microscopic changes were found in the posterior vesical neck region in all but two, corresponding in stage and degree with the conditions in the adjacent prostate. Of the sixty-six specimens showing microscopic prostatitis, forty-nine showed a greater or a lesser degree of inflammation of the ejaculatory ducts. Of the forty-nine specimens showing inflammation of the ejaculatory duct, three were found with no seminal vesiculitis, thirty with slight indefinite chronic catarrhal seminal vesiculitis, and sixteen with marked chronic,

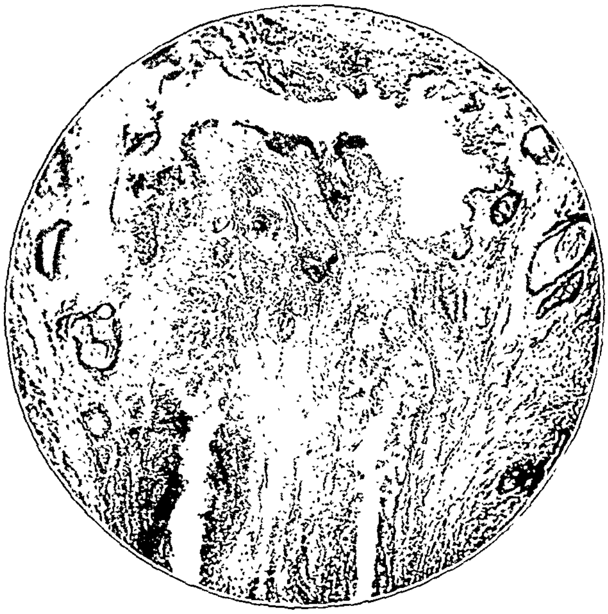

Fig. 6.—Higher magnification of verumontanum seen in figure 5. Submucosal round cell infiltration of ejaculatory ducts and utricle, with similar infiltration about the glands and vessels, indicates low grade inflammatory involvement of this region. The prostate shows low grade chronic inflammation, while the deeper portion of the ejaculatory ducts and seminal vesicles does not show any change.

subacute and acute seminal vesiculitis. Of the sixteen specimens showing marked seminal vesiculitis, only four showed definite inflammatory infiltration of the seminal vesicle wall, one presenting prostatic abscess, one periprostatic abscess, and two marked chronic catarrhal seminal vesiculitis; three specimens demonstrated microscopic evidence of perivesiculitis, one presenting chronic catarrhal seminal vesiculitis and two subacute purulent vesiculitis with prostatic and periprostatic abscess. No marked seminal vesiculitis was seen without corresponding inflammation of the ejaculatory duct.

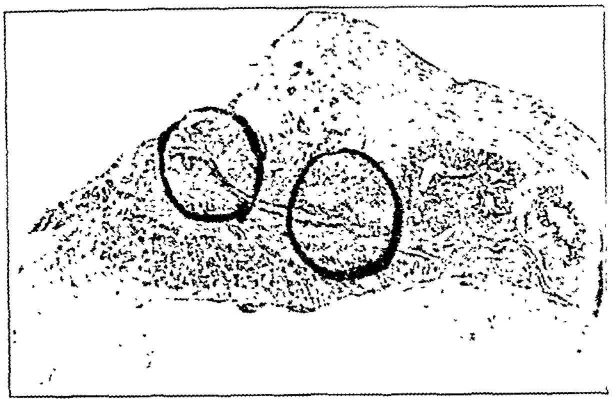

Fig. 7.—Large sagittal section of the posterior urethra and vesical neck floor in a specimen displaying chronic prostatitis and inflammation of the verumontanum, ejaculatory duct and seminal vesicle.

On the basis of the microscopic studies made, it is possible to state definitely that inflammatory infiltrations occur in the walls of the seminal vesicles and ejaculatory ducts. It is also obvious that intermittent congestive obstruction of the latter must occur in a manner similar to that found in other epithelial-lined ducts with pathologically narrowed lumens. The lumen can easily become occluded temporarily by inflammatory débris arising in the seminal vesicle or in the ejaculatory duct itself.

Although the foregoing conclusions can be made, our studies do not show that such chronic infiltrative changes occur frequently in the muscularis of the seminal vesicles. Only in the presence of active, destructive, suppurative adnexal inflammation was marked perivesicular inflammation found. Such cases showed corresponding changes in the wall of the vesicle, and the lumen participated in the active surface inflammation in the urethra and ejaculatory ducts. The changes were sufficient to interfere with normal functional activity. Similarly, the ejaculatory ducts, in these cases, showed sufficient active infiltrative inflammation to permit of intermittent obstruction, either because of congestive changes or because of occlusion by inflammatory débris. Permanent occlusion of the ducts, due to subsequent scarring, seemed to be a remote possibility.

However, studies of the rather frequent ordinary forms of chronic posterior urethritis led to the conclusion that the aforementioned reaction is quite exceptional.

In the great preponderance of cases in which inflammatory changes were found in the seminal vesicles, associated with gross observations of posterior urethral and vesical neck cicatrization and low grade prostatitis, the microscopic picture was entirely different. Marked changes in the vesicle wall and perivesicular region were usually absent, and superficial changes alone were noted in the submucosa, mucosa and lumen. When definite superficial inflammation was noted in the vesicles, without infiltration of the wall, corresponding superficial changes were noted in the ejaculatory ducts in all the specimens. In a limited number of these cases mild inflammatory changes were noted in the ejaculatory duct walls, consisting of round cell infiltration and in a few instances scar formation. In some specimens the juxta-urethral portion of the ejaculatory duct showed chronic inflammatory infiltration diminishing in severity as the seminal vesicle, which was apparently normal, was approached.

It seems probable that the ordinary mild forms of seminal vesiculitis, occurring by surface and lymphatic extension, fail to involve the vesicle wall with any marked infiltrative reaction. Similar to that of any epithelial-lined organ, in the absence of glandular invaginations, the inflammatory reaction tends to remain superficial or catarrhal in nature. The poor drainage afforded the vesicles by the narrowed ejaculatory ducts and the folded arrangement of the mucosa are factors which tend to produce chronicity. But even under these circumstances the muscle walls seem to be subjected to little injury in most instances.

The ejaculatory ducts, on the other hand, are subjected to different influences. Being situated close to the urethra and being intimately surrounded by a gland which is very prone to chronic infection, the ejaculatory duct should show a higher rate of deep seated cicatrization and round cell infiltration than would the seminal vesicles. In addition, the terminal juxta-urethral portion is intimately related with glandular structures, some of which communicate with the duct directly. The verumontanum from its situation and structure frequently undergoes marked inflammatory change, and it is evident that the terminal portion of the ejaculatory duct must be more susceptible to infiltrative changes in this region. Our studies have demonstrated this to be true. In many instances, chronic ejaculatory duct inflammation was found without corresponding changes in the deeper coats of the vesicles. The arrangement of blood vessels in the verumontanum and in the ejaculatory ducts demonstrates the ability of these structures to become engorged. Irritative congestion superimposed on infiltrative lesions, which in themselves may

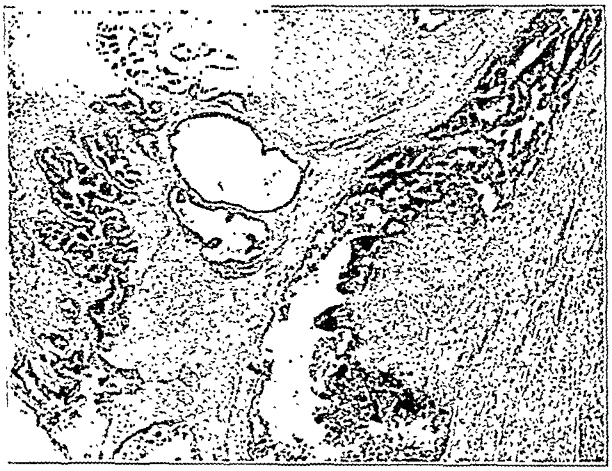

Fig. 8.—High magnification of the ejaculatory duct in the region of the verumontanum shown in figure 7. Chronically inflamed cystic glands, intra-acinous and periacinous cellular exudation as well as perivascular round cell infiltration are noted. The stroma adjacent to the ejaculatory duct shows numerous blood vessels with perivascular round cells and an increase in newly formed fibrous tissue. The mucosa and submucosa show round cell infiltration with desquamation of epithelial cells, round cells and plasma cells in the lumen.

not be obstructive, can produce intermittent occlusion of the lumen of the duct.

Our studies make it evident to us that the ejaculatory ducts are always involved in posterior urethral inflammation. In the greater number the infection is mild and juxta-urethral, and of these only a relatively small percentage cause sufficient involvement to eventuate in chronic infiltrative changes of the terminal portion of the duct. In cases in which, because of various factors, infection of the adnexa becomes more widespread and chronic, catarrhal inflammation of the ejaculatory ducts and seminal vesicles will be found in conjunction with a diffuse follicular prostatitis. In a definite proportion of these cases chronic inflammatory changes of the wall of the juxta-urethral portion of the ejaculatory duct (associated with productive inflammation of the verumontanum) will occur eventually, with diminishing tendency toward such involvement as the seminal vesicles are approached.

The seminal vesicles, in the greatest number of chronic adnexal inflammations, show superficial inflammatory changes of a chronic type, with little evidence of infiltration of the walls. This pathologic observation should not be interpreted to mean that chronic seminal vesicular infection is uncommon but merely that marked inflammatory response in the wall and perivesicular tissue does not occur with the ordinary types of chronic vesiculitis. Such marked involvement is seen only in conjunction with overwhelming regional inflammation of the destructive suppurative type.

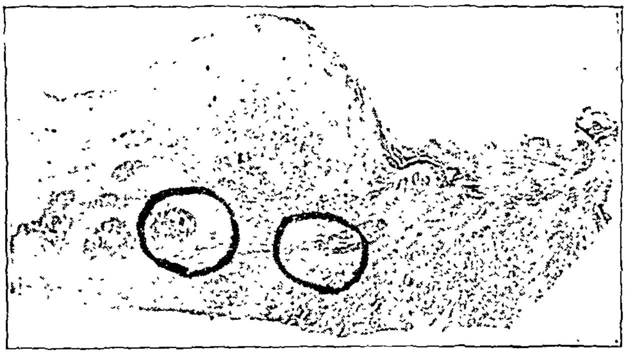

Fig. 9.—Sagittal section through the posterior aspect of the entire vesical neck and posterior urethral region. A case showing chronic posterior urethritis, prostatitis, seminal vesiculitis and inflammation of the ejaculatory duct.

Clinical experience accepts the conception that spread of infection from the posterior urethra occurs by way of mucosal continuity and lymphatic invasion. The lymphatics of the posterior urethra are known to drain with those of the prostate and seminal vesicle to the hypogastric and external iliac glands. Active infection and inflammation of these structures may result in acute lymphangitis and regional lymphadenitis, with or without local inflammatory infiltration of the affected region. With the subsidence of the focal infection, lymphangitis becomes less marked, although the lymph nodes remain enlarged for a considerable period. Numerous specimens are noted of frank cicatricial posterior urethritis and chronic quiescent prostatitis, with or without inflammation of the ejaculatory ducts and the seminal vesicles, in which the regional lymph nodes were enlarged but with no perivesicular fibrosis. It is conceded that these necropsy observations do not preclude the possibility of the previous incidence of temporary infiltration and inflammatory thickening of the periprostatic and perivesicular regions, with complete or almost complete absorption of exudate and a return to normal with a minimum degree of postinflammatory fibrosis. Here again the rich lymphatic and blood supply, which would seem to predispose to regional spread to the perivesicular regions, with the deposition of chronic inflammatory exudate may really promote rapid absorption of inflammatory products in this region.

On the other hand, marked destructive suppurative involvement of the prostate and seminal vesicles causes marked exudative response of the entire region, and with marked suppurative destruction of tissue, reparative processes should result in fibrosis of the vesicles and perivesicular regions. Even in such cases absorption of a great proportion of the inflammatory mass occurs. These considerations may explain the fact that necropsy studies fail to encounter vesiculitis and perivesiculitis with the same frequency that would be expected from clinical impressions alone.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. MC CARTHY AND RITTER AND DRS. HYAMS, KRAMER AND MC CARTHY

Dr. J. Sydney Ritter, New York: I will show a slide which emphasizes the fact that one cannot have pathologic changes in the prostate without some changes in the ejaculatory ducts. One slide demonstrates a condition which I think Drs. Hyams, Kramer and McCarthy failed to mention; that is, infection involving the utricle. Now that pathologic changes are known to exist in the seminal vesicles and ejaculatory ducts, the question of therapy arises. What is one going to do to effect a cure? Some time ago seminal vesiculectomy was advocated, and many have attempted it, with such poor results that it has practically disappeared from therapeutic surgical procedure. I think this is largely due to the fact that the diagnosis has been based on a rectal examination with the uncertain finger and on the more uncertain subjective symptoms of the patient. These results are due to the fact that no attention is paid to the ejaculatory ducts, and drainage through them is not favored. Vasotomy is objected to because that means a surgical procedure with no attention paid to the ejaculatory duct. The procedure advocated today by Drs. McCarthy and Ritter should *be a universal practice because vesiculitis can be diagnosed* scientifically. One should note the condition of the ejaculatory duct, medicate the vas deferens, dilate the duct and pave the way for cure.

Dr. A. E. Bothe, Philadelphia: One needs only to have worked with desiccated seminal vesicle specimens to know what difficulties Drs. Hyams, Kramer and McCarthy must have encountered in collecting the interesting group shown in the scientific exhibit. Dr. Coulbeck and I have been working along the same lines, and although we have not studied as many specimens, we have done enough to realize the difficulties that one encounters in this work. It is the anatomic relation of the vasa deferentia, the ducts of the seminal vesicles and the ejaculatory ducts to which I wish to make especial reference. Before preparing our specimens for desiccation, we injected sodium iodide through the vasa deferentia and took roentgenograms. These pictures consistently showed that the ejaculatory duct is a continuation of the duct of the seminal vesicle. They also showed that the vasa deferentia joined the seminal vesicle duct at various angles, ranging from the extreme acute type up to an almost complete right angle. The desiccated specimens also gave evidence of this relation. In another group of specimens we made a number of serial sections through the region of the ducts. These showed definitely that the seminal vesicle ducts are larger than the vasa deferentia and that the latter join the duct of the seminal vesicle, which becomes the ejaculatory duct. If one considers this anatomic relation of the ducts of the seminal vesicle, vasa deferentia and ejaculatory ducts, it is easy to see the marked influence which periductal inflammatory changes may have in causing obstruction which may play an important part in sterility, as well as other symptoms.

Dr. J. Dellinger Barney, Boston: Fifteen or eighteen years ago, when many seminal vesicles were being taken out because of disease, I injected many of them, and the roentgenogram showed almost the identical pictures that Drs. McCarthy and Ritter have so well demonstrated. After a good deal of experience I got so that I could tell before taking out the seminal vesicle whether it was or was not the seat of disease. It showed the changes in the lumen and in the conformation. I also verified the work of Picker many years ago, in which he was able to divide the contour of the seminal vesicle into three or four portions. I think that with some experiences one can tell whether the seminal vesicle is or is not diseased before taking it out. I wish to know how far into the ejaculatory duct one can pass the catheter.

Dr. J. A. Hyams, New York: Because of the brief time allotted, we were able to discuss only eighty-four specimens. In the study of celloidin casts, demonstrated in detail in the exhibit, an additional forty series of microscopic sections of the uninjected opposite seminal vesicle were examined. Although these sections corresponded in part as to histopathologic observations, the amount of pathologic change was greater in the larger sections, emphasizing the importance of large sagittal and transverse sections through the seminal vesicles and contiguous structures. Picker injected seminal vesicles with bismuth paste, took roentgenograms and dissected the vesicular mass. He demonstrated the structure of the seminal vesicle. Pallin made casts to study the embryologic structure, but his technic was not available. Such work does not suffice for our present needs. Therefore, not only casts but roentgenograms, microscopic examination of the secretion, and complete gross and histopathologic studies were made in order to determine the pathologic changes present in these structures. Histologic investigation of isolated structures falls short of the desired result, and only by complete pathologic studies such as we have made, combined with parallel clinical and instrumental observations as presented by Drs. McCarthy and Ritter today, can a proper conception of the pathologic changes be derived. Impressions of abnormality in the seminal vesicles as shown by digital palpation or ordinary methods of examination are necessarily incomplete. The complexity of the vesicular mass is such that no two vesicles can be said to be the same. Variations occur on the two sides in the same individual. Furthermore, a fairly definite relationship has been found to exist between inflammatory change at the posterior urethra, vesical neck and adnexa. Vesiculitis presupposes urethral involvement. With increasing complexity of the seminal vesicle there is greater incidence of infection, and drainage becomes more difficult. Evacuation of secretion is further impeded by superimposition of abnormalities. The persistence of infection is dependent on the complexity of the structures rather than on the type of virulence of the infecting agent. In our dissection of 500 bodies, perivesiculitis and terminal fibrosis was found in only six cases. Thorough methods of clinical investigation by those individuals who by their training and experience are particularly well qualified in this field, coordinated with more extensive studies along broad pathologic lines, will eventually lead to greater diagnostic accuracy and improved methods of treatment of diseases of these structures.

Dr. J. F. McCarthy, New York: Emphasis is laid on the proximity of the two ducts, to call attention to the great care that must be exercised in these injections. The ducts are separated by so thin a membrane that it is possible to inject on one side and find a vesiculogram of the other. The paper contains all the material that we did not have time to elaborate. Dr. Barney has asked how far the catheter may be introduced. From 2 to 2.5 cm. is sufficient.

The Background of Personality.—The most fundamental characteristic of normal human personality is unity, wholeness, integration. This integration appears in many ways. It is shown in the tropisms of plants and animals and in concentration of attention to the child and the adult. The general function of the nervous system is integration. Recent studies of the brain put emphasis also on the whole rather than any special part.—Burnham, W. H.: The Wholesome Personality, New York, D. Appleton & Co., 1932.

THE RELATION OF CONGENITAL DEFORMITIES OF THE HAND TO CERVICAL RIBS *

ROBERT V. FUNSTON, M.D.

DETROIT

Several months ago a woman, aged 50, and her daughter, aged 9, were examined in the orthopedic clinic at Harper Hospital. The mother had a bilateral absence of the radius with club hand deformity and rudimentary thumbs. The daughter had an exactly similar deformity of the right hand. The left hand of the daughter, however, had no thumb and there was a synosteosis between the radius and the ulna just distal to the elbow joint.

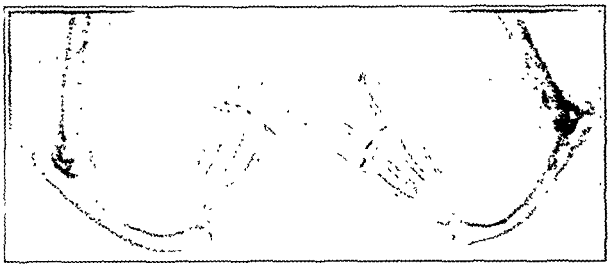

Fig. 1 (case 1).—Right and left hands, showing rudimentary radii.

During the examination, cervical ribs were palpated in the neck of the mother, and roentgenograms revealed well developed cervical ribs in both mother and daughter, as shown in figure 2.

The finding was so striking that two patients with club hand previously seen were brought back for roentgen examination, and both were found to have cervical ribs.

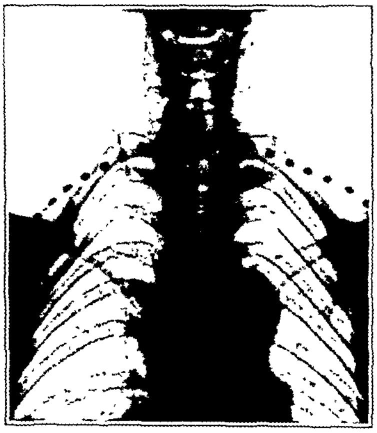

Fig. 2 (case 1).—Cervical spine showing large hornlike cervical ribs.

A baby about 3 months old was recently seen for the first time in the clinic and showed also the presence of cervical ribs.

Whether the presence of cervical ribs in congenital absence of the radius in these five cases is coincidental or a consistent finding, I am anxious to determine.

In no instance in this series was there a complete absence of the radius, but in five instances in the six club hands present there was only a small proximal portion of the radius to be seen. In the other case, the radius, although rudimentary, articulated with the carpal bones.

In reviewing the literature on the subject, including textbooks, I do not find mention of any association of the two deformities.

Pasquali,[1] in 1880, reported a typical case of bilateral absence of the radius in a child. There was, in addition, absence of both first metacarpal bones and of certain carpal bones. The thumbs consisted of two phalanges and were attached to the hand by a minute cutaneous peduncle. The hands, which were articulated directly with the ulna, were found in a position of such marked adduction that the external edge of the hand formed an approximate right angle with the corresponding margin of the forearm. The four fingers of the hand showed clinodactyly with moderate flexion deformity.

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* Read before the Section on Orthopedic Surgery at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 11, 1931.

[1] Pasquali: Un bambino mancante di ambedue le ossa del radio (Case of Bilateral Absence of the Radius in a Child), Boll. d. Accad. med. di Roma 6: 6, 1880.

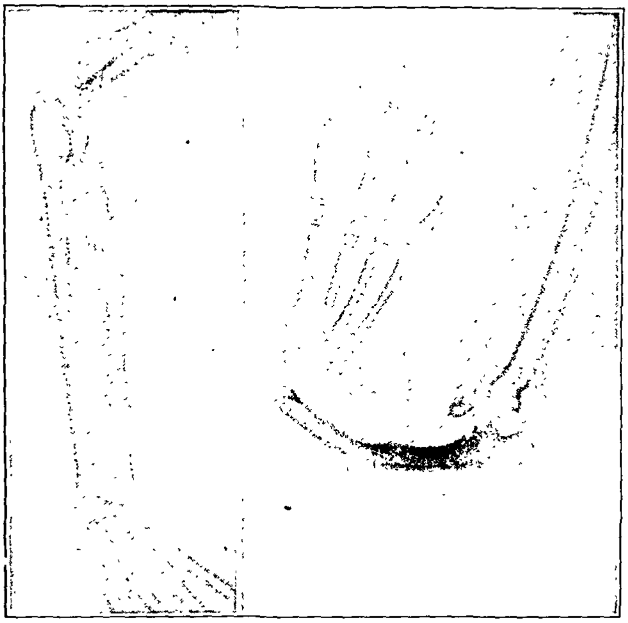

Fig. 3 (case 2).—Right and left forearm, showing on the left rudimentary radius with club hand; on the right, synosteosis between radius and ulna in the upper third.

Cuff,[2] in 1896, reported an interesting case of the absence of the radii in both arms which developed after the age of 17, as a result of congenital syphilis. Congenital syphilis has been mentioned in several instances as a possible predisposing cause of the deformity.

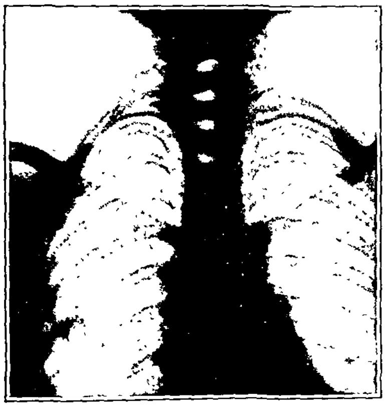

Fig. 4 (case 2).—Cervical spine, showing large cervical ribs.

Reisz,[3] in 1904, presented a typical case of bilateral congenital absence of the radius in a woman, aged 20.

Illyes,[4] in 1907, presented a case in an infant.

Roschke,[5] in 1912, drew attention to the fact that the upper arm and scapular regions appeared normal in a case presented by him. He described in detail the muscular action exhibited in the use of the hands.

Garrido Lestache,[6] in 1918, presented a typical case of "radiopalmar club hand" in an infant, aged 9 days.

Infante[7] draws attention to the fact that in his patient, a little girl, there was no involvement of any other part of the body.

Oidtmann[8] presented a case of a boy, aged 7 months, on whom he operated, bifurcating the lower end of the ulna and attaching the scarified carpus into its normal position. Roentgenograms taken several months later showed that the bifurcated extremities of the ulna had thickened and enclosed the carpus.

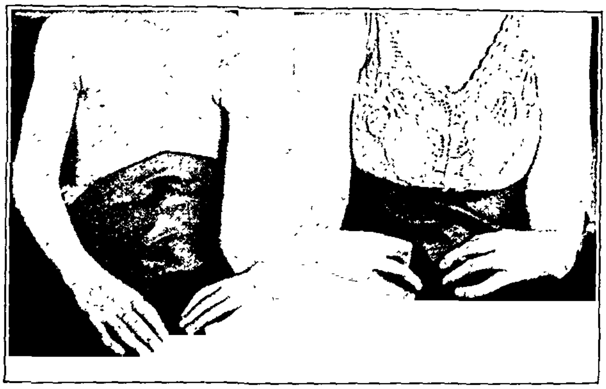

Fig. 5 (cases 1 and 2).—Mother and daughter, showing typical deformities.

Spears,[9] describes a child, aged 20 months, showing "considerable shortening of both forearms with adduction of both wrists, giving the hands the appearance of feet." He applied plaster of paris to correct the deformity.

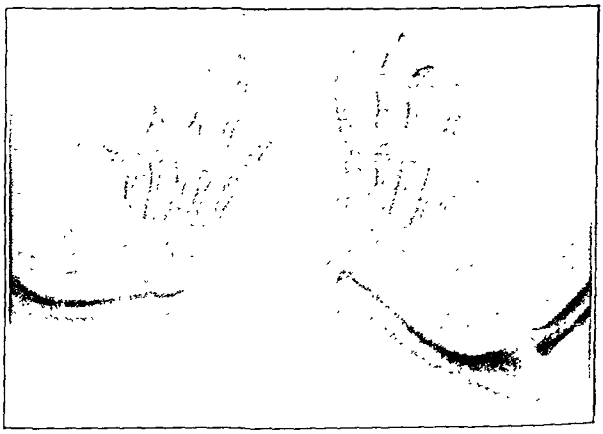

Fig. 6 (case 3).—Club hand with rudimentary radii and first metacarpals.

Alonzo,[10] in 1925, reports three cases of congenital deformity of the forearm in adults, in which the radius was absent in two cases; the ulna, in one instance. He states that among 1,444 cases of deformity, Hoffa noted the absence of the radius in one, while Dollinger did not note it once among 859 cases. In Raboud and Hovelacque's statistics, in 1924, absence of the fibula was noted in 268 cases, of the tibia in 122 cases, of the radius in 220 cases, and of the ulna in 71 cases. Ratsuji Kato's statistics included 253 cases of a defective radius. Amniotic constriction, intra-uterine fractures, ischemic phenomena and mental injury of the mother are considered, among others, as etiologic factors. In Alonzo's opinion, endocrine disturbances, especially of the pituitary, are responsible for congenital hemimelia.

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[2] Cuff, A.: Absence of Radii, Clinical Sketches, London **3**: 41-42, 1896.

[3] Reisz, O.: Ketoldalu veleszuletett Radiushiany flenott egyenen (Bilateral Congenital Absence of the Radius), Gyógyászat, Budapest **44**: 727, 1904.

[4] Illyes, G.: Congenital Absence of the Radius, Orvosi hetil. **51**: 36, 1907.

[5] Roschke, E.: A Case of Bilateral Absence of the Radius, Inaug.-Diss., Munich, 1912.

[6] Garrido Lestache: Un case de ausencia congenita bilateral y completa del radio y de todos los huesos del carpo (A Case of Complete Bilateral Congenital Absence of the Radius and of All the Carpal Bones), Pediatria españ. **7**: 91, 1918.

[7] Infante, C.: Un Caso di assenza congenita del radio bilaterale (A Case of Bilateral Congenital Absence of the Radius), Atti del I. Congresso italiano di radiologia medica **1**: 154, 1913.

[8] Oidtmann, A.: Result of Operative Treatment of Complete Absence of the Radius, Nederl tijdschr. v. geneesk. **1**: 2172, 1917.

[9] Spears, L. P.: Bilateral Congenital Absence of Radius, Kentucky M. J. **21**: 407 (Aug.) 1923.

[10] Alonzo, P.: Three Cases of Defective Forearm, Riforma med. **41**: 487 (May 25) 1925.

Lewin,[11] in 1918, and Gaenslen,[12] in 1914, both presented a series of cases, but neither reported any abnormalities in the cervical spine.

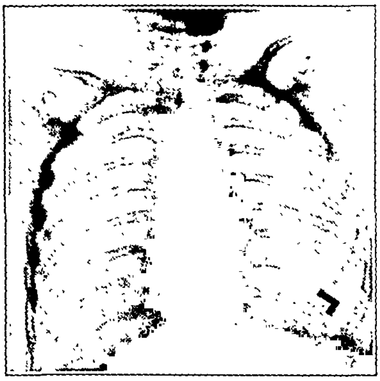
Fig. 7 (case 3).—Cervical spine showing cervical ribs.

The cases that are being presented in this paper are typical, except that in one case the radius was not as rudimentary as in the others. In all the cases, the thumb was rudimentary and was attached only by a cutaneous peduncle.

The presence of the condition in a mother and daughter strongly favors an hereditary basis. In no instance was there any history of syphilis and in all instances the Wassermann reaction was negative.

One striking fact was noted: that the difference in development of the arm, as far as length was concerned, in a comparison of the mother and daughter in this series, was very slight. The length of the ulna as developed in the mother was 5½ inches (14 cm.). As developed in the daughter at the age of 9, 4½ inches (11.5 cm.). This fact makes it seem an advantage to correct surgically the deformity in these cases early, so as to obtain the maximum muscular development and dexterity of the hand, rather than to wait for the osseous growth.

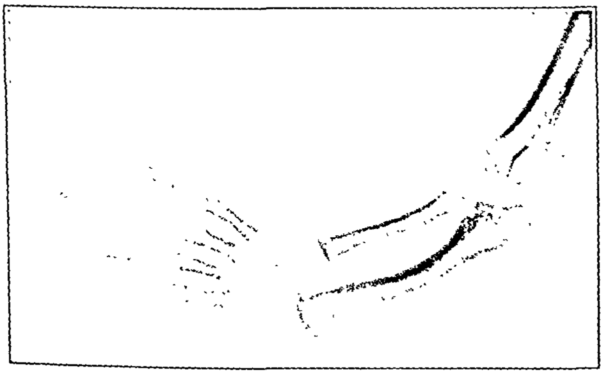
Fig. 8 (case 4).—Rudimentary radius and thumb.

Three of the patients herein mentioned have received treatment. The patient who had a complete but undeveloped radius was operated on, and a portion of the ulna was removed in the middle third. The deformity was then corrected and has remained so. The rudimentary thumb was amputated and a thumb was devised from the index finger by making a cleft between the metacarpals and rotating the finger by osteotomy. A resection of the distal interphalangeal joint, with removal of part of the middle phalanx later, improved stability. The end-result was a satisfactory three fingered hand with a thumb, which functioned almost normally.

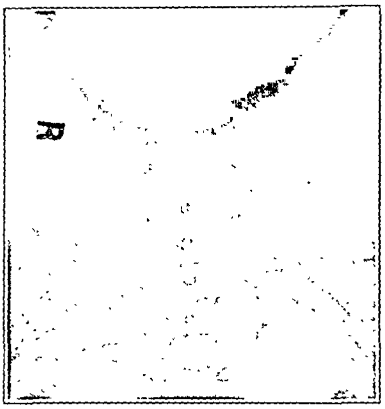

Fig. 9 (case 4).—Cervical spine showing cervical ribs.

The operation performed in the second case was the correction of the deformity and arthrodesis of the ulna to the carpus. This was done by Dr. Frank Curtis at the Children's Hospital and resulted in marked improvement in the function of the hand.

The third patient, a baby seen a few weeks after birth, was treated by a plaster-of-paris dressing until overcorrection was obtained. A splint was then applied to maintain correction until sufficient growth had occurred to justify operative procedure.

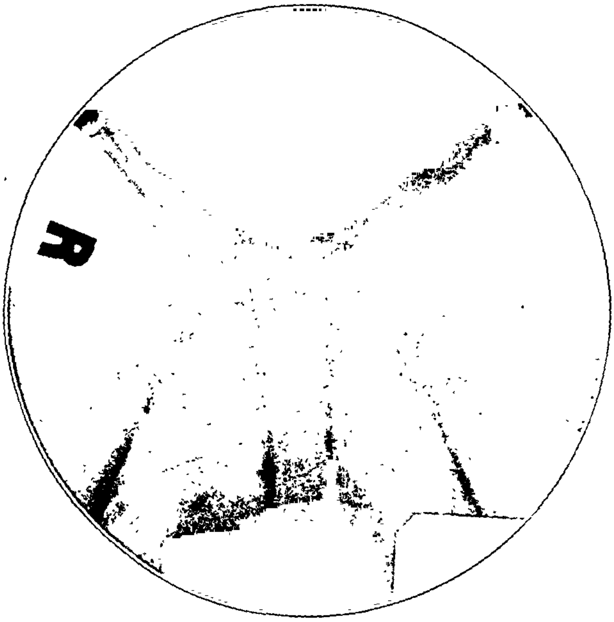

Fig. 10 (case 5).—Cervical spine showing cervical ribs.

The mother and the daughter refuse treatment.

Two additional cases have been added to this series by Drs. Robert Schrock of Omaha and F. J. Gaenslen of Milwaukee, showing club hand deformities and cervical ribs.

1551 Woodward Avenue.

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[11] Lewin, Philip: Congenital Absence of Bones of the Extremities, Am. J. Roentgenol. **4**: 431 (Sept.) 1917.

[12] Gaenslen, F. J.: Congenital Defects of Tibia and Fibula, Am. J. Orthop. Surg. **12**: 453-481, 1914-1915.

ABSTRACT OF DISCUSSION

Dr. Philip Lewin, Chicago: In a series of cases reported in 1918 I failed to have roentgenograms taken of the cervical spine. *I shall* try to get some of the patients to come back for that examination. Dr. Funston is emphasizing the importance of this seventh cervical region and some day the proper importance will be attached to it. It took many years for the fifth lumbar vertebra to obtain its due recognition. I should like to ask Dr. Funston at what age he expects cervical ribs to show. I reported one instance of cervical rib in a case of brachial birth palsy, associated with osteochondritis of the upper end of the humerus in a girl aged 6 years.

Dr. F. J. Gaenslen, Milwaukee: The observation of the peculiar broadening of the neck of the mother of one of the patients apparently led to the search and to the finding of further cases in which congenital deformities of the hand and cervical rib were associated. The fact that five or six such cases were found would seem to indicate that this was not a coincidence. I had hoped that Dr. Funston would set up a hypothesis for us to shoot at, as it seems easier in this case to disagree with any of the theories suggesting themselves than it is to offer one that will stand scrutiny. I certainly have none to offer.

Dr. Robert V. Funston, Detroit: In answer to Dr. Lewin's question, the earliest case was in a child aged 8 weeks when the roentgenogram was taken. The cervical ribs did not show up clearly. They do not show up so clearly in the younger children as they do later on. I should like to say also that Dr. Schrock of Omaha sent me a photograph and roentgenogram of a child whom he saw, and the child showed a definite cervical rib. Dr. Gaenslen also has reported a case. The child was very young. The roentgenograms seem to show a cervical rib, but I wouldn't be willing to say, as they are not very clear.

IMMEDIATE CECOSTOMY AND CONSTANT LAVAGE IN MERCURIC CHLORIDE POISONING *

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AND
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CLEVELAND

An analysis of 163 cases of mercuric chloride poisoning in the Mount Sinai Hospital of Cleveland, both from the clinical and particularly from the pathologic point of view, has demonstrated the importance of gangrenous colitis in the course of mercury poisoning.

It has been the general conception in the past that most patients with mercury poisoning die of renal insufficiency. "Unless a fatal issue results early from shock or some other unusual occurrence, the patient [poisoned by mercury] virtually lives or dies by his kidneys." [1]

In the past five years, the number of patients (seventeen) with mercury poisoning coming to autopsy at Mount Sinai Hospital of Cleveland were found to fall into three groups (table 1): Group 1. Those dying within forty-eight hours of the ingestion of the poison in shock, following an extensive and severe gastritis, with marked hemorrhagic necrosis of the stomach wall. Group 2. Those dying from forty-eight hours to seven days after the ingestion with retention of nitrogenous substances following a severe necrotizing nephrosis. Group 3. Those dying from seven to twelve days after ingestion with an extensive and severe gengrenous *colitis, the kidney lesion at this* time showing evidence of healing.

The colonic lesion, therefore, is one of the three most important causes of death in mercuric chloride poisoning.[2] *Therefore, measures to combat this* serious involvement must of necessity assume an important rôle in the treatment of mercuric chloride poisoning, and we have found immediate cecostomy and constant colonic lavage to be the most effective.

Table 1.—*Lesions of Mercury Poisoning*

	Duration		
	Within 24 Hours of Ingestion	From 48 Hours to 7 Days After Ingestion	From 7 to 12 Days After Ingestion
Number of cases	6	7	4
Principal lesion	Extensive severe gastritis (fig. 1)	Necrotizing nephrosis (figs. 2, 3 and 4)	Extensive, severe gangrenous colitis (fig. 5)
Other lesions	Shock; alteration of blood with increased fluidity and inability to clot	Retention of nitrogenous substances; generalized parenchymatous degeneration; gastritis of variable severity	Gangrenous stomatitis; healing nephrosis; healing gastritis

The idea of cecostomy is not new. Perhaps the first to try cecostomy early in mercury poisoning was Anderson, who in 1915 reported recovery of a girl, aged 19 years, in whom cecostomy was done about fourteen hours after the ingestion of 10 grains (0.65 Gm.) of mercuric chloride. The colon was continuously lavaged with water to which various agents were added.

We also have employed it in the past, but always late and as a last resort. However, the gangrenous lesions in the colon were by then well advanced and the gangrenous process frequently extended to the operative wound and abdominal wall. This added greatly to the suffering of the patient and to the difficulty of treatment, without modifying an invariably fatal outcome. Hence the procedure was abandoned.

During the past five years we became so thoroughly impressed with the colonic lesions at the postmortem table that we again resorted to cecostomy and constant colonic lavage as soon as symptoms of colitis appeared, in the hope of combating it, but with equally disappointing results. Then the idea of performing cecostomy as soon as mercury poisoning could be established occurred to us and has been employed with encouraging results.

Our present plan is to establish a diagnosis promptly in all patients admitted with mercury poisoning, so that immediate cecostomy and constant lavage may be done, provided the patient is not in shock. We have found the electrolytic method of Booth and Schreiber,[3] which can be performed in five minutes, the most satisfactory method for the prompt detection of mercury. The older methods (Vogel and Lee) were more difficult and it often took several days before reliable information was obtained, and thus the most opportune time for treatment was lost.

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* From the Departments of Medicine and Pathology, Mount Sinai Hospital.

* Read before the Section on Practice of Medicine at the Eighty-Second Annual Session of the American *Medical Association, Philadelphia,* June 12, 1931.

[1] Doane, J. C., in Billings: *George* Blumer Edition of Forchheimer's Therapeusis of Internal Diseases **3**: 634, 1926

[2] Schuster, quoted by Welander, E.: Ann. de dermat. et syph., series 2, **7**: 412, 1886. Lambert, S. W., and Patterson, H. S.: Poisoning by Mercuric Chloride and Its Treatment, Arch. Int. Med. **16**: 865 (Nov.) 1915. Zeigler, W. H.: J. Lab. & Clin. Med. **10**: 259 (Jan.) 1925.

[3] The electrolytic method of Booth and Schreiber (*J. Am. Chem. Soc.* **47**: 2625 [Nov.] 1925) is as follows: The current from an ordinary dry cell (about 1 volt) is allowed to flow through the specimen to be tested for five minutes, a platinum wire being used for an anode and a bright copper strip for a *cathode. The mercury, if present, is deposited as a silvery metallic film on the copper.* The method is delicate and reliable and does not require preliminary digestion. The sensitivity of the test may be increased by concentrating the specimen by evaporation. The method has been modified from that originally given by *Booth and* Schreiber, approximately 25 cc. of the specimen to be tested being used in a small evaporating dish instead of a few drops in a tissue *culture slide as* recommended by Booth and Schreiber, and also a strip of copper several millimeters in width for the cathode in place of a fine copper wire. The method is economical, dispensing with the use of large quantities of chemicals, and there are *no disagreeable fumes.*

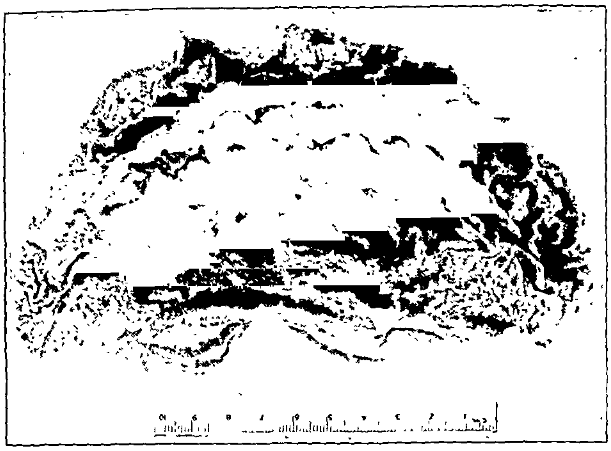

Fig. 1.—Acute hemorrhagic and gangrenous gastritis.

Cecostomy was performed in nine cases. In three, cecostomy was done on the fourth day after ingestion. All the patients died. Two patients were operated on the third day after ingestion. Both died. One patient was operated on within twenty-four hours after admission but fifty-six hours after ingestion of the poison. This patient died in shock. Three patients were operated on fifteen, nineteen and nineteen and a half hours, respectively, after ingestion. All three recovered.

Table 2.—*Chart of Operations*

Total	Died	Necropsy	Recovered
9	6	3	3

No. of Patients	Operated On	Result
1	2d day after ingestion	Died on the day of operation
1	4th day after ingestion	Died on the day of operation
1	3d day after ingestion	Died day after operation
1	4th day after ingestion	Died second day after operation
1	3d day after ingestion	Died third day after operation
1	4th day after ingestion	Died ninth day after operation
1	15 hours after ingestion	Recovered
1	[illegible]	Recovered
1	[illegible]	Recovered

Table 2 seems to indicate that the earlier cecostomy is performed, the better the prognosis.

FATAL CASES

Case 1.—S. G. took six tablets of mercuric chloride, August 10. The patient was admitted to the hospital, August 14, and a cecostomy was performed the same day. The patient died the following day. The observations at autopsy were: necrotizing nephrosis; gastritis with ulceration, and congestion of the colon. It should be noted that cecostomy was done in this case on the day of admission but four days after ingestion of the mercury.

Case 2.—L. J. took ten tablets of mercuric chloride. The patient was admitted to the hospital, June 17. A cecostomy was performed, June 21, and the patient died, June 23. The observations at autopsy were: marked necrotizing nephrosis; hemorrhagic and gangrenous gastritis, and gangrenous colitis. The cecostomy in this case was done four days after ingestion of the mercury.

Case 3.—C. N. took two tablets of mercuric chloride and was admitted to the hospital in shock, November 16. Cecostomy was done, November 17, twenty-four hours after ingestion of the mercury. The patient died in shock. The observations at autopsy were: necrotizing nephrosis, and hemorrhagic and gangrenous gastritis. The colon was normal. Blood for an examination of the chemistry of the blood was not obtained.

CASES IN WHICH THE PATIENTS RECOVERED

Case 4.—B. L. had taken nine tablets of mercuric chloride at 5:30 p. m., January 8, and was admitted to the hospital at 6 o'clock that same day. Cecostomy was performed, January 9, at 12:12 p. m. (nineteen hours after ingestion). The patient was discharged, February 11.

Case 5.—R. L. took several tablets of mercuric chloride. The patient was admitted to the hospital, September 2, at 4:45 p. m. Cecostomy was performed, September 3, at 12:20 p. m. (nineteen and one-half hours after ingestion of the mercury). The patient was discharged, September 18.

Case 6.—C. C. took one tablet of mercuric chloride, December 25, at 8:20 p. m. and was admitted to the hospital at 9:10. Cecostomy was performed, December 26, at 11:20 a. m. (fifteen hours after ingestion). The patient was discharged, January 10.

We now feel that, when cecostomy is done, if the gastric flushing is positive and the colonic flushing negative for mercury the prognosis is better than when the colonic flushing is also positive.

In many cases in which the diagnosis on admission was mercury poisoning, no mercury was recovered from the excreta. This may be explained by the fact that either no mercuric chloride was taken or the method of detection was not satisfactory. If these cases are included in statistics, it would materially bring down the mortality, and undue credit would be given to whatever plan of treatment was used. This would explain the discrepancy in the mortality rate as reported in the literature.[4]

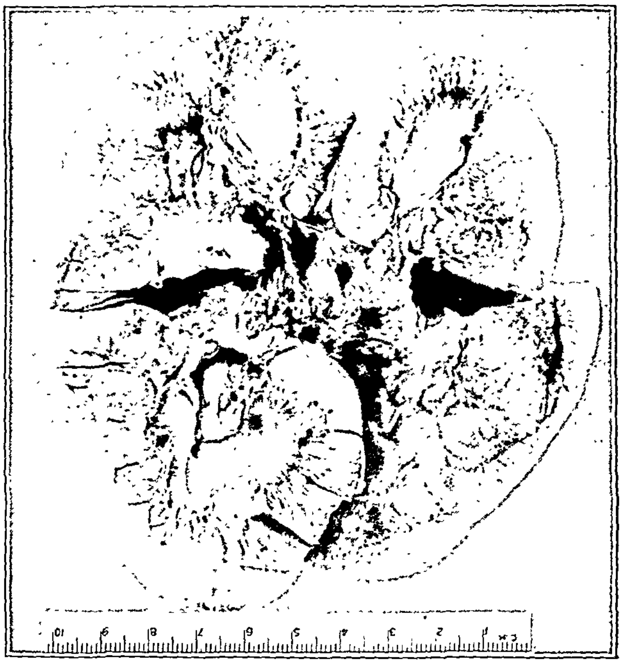

Fig. 2.—Necrotizing nephrosis.

In this series of 163 cases, 57 were proved; that is, mercury was recovered from the excreta; 106 were doubtful. Many of the doubtful cases were the earlier ones of this series, and many of them were clinically mercury poisoning but no mercury was recovered from the excreta.

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[4] Doane (footnote 1). Lambert and Patterson (footnote 2). Schuster (footnote 2). Zeigler (footnote 2). Anderson, J. H.: Surg. Gynec. Obst. **20**: 350, 1915. Weiss, H. B.: Mercuric Chloride Poisoning, Arch. Int. Med. **33**: 224 (Feb.) 1924; Ohio State M. J. **13**: 595 (Sept.) 1917; The Principles of Treatment in Mercuric Chloride Poisoning, J. A. M. A. **71**: 1045 (Sept. 28) 1918. Goldblatt, Samuel: Am. J. M. Sc. **176**: 645 (Nov.) 1928.

The severity of the poisoning depends on a number of factors: (1) the amount of mercuric chloride taken; (2) whether the mercury is taken in tablet form or in solution; (3) the condition of the stomach, i. e., whether empty or full (one tablet taken in solution on an empty stomach will do a great deal more damage than a larger dose on a full stomach, with the time factor for initiation of treatment the same); (4) whether vomiting occurs immediately, and (5) promptness with which treatment is instituted.

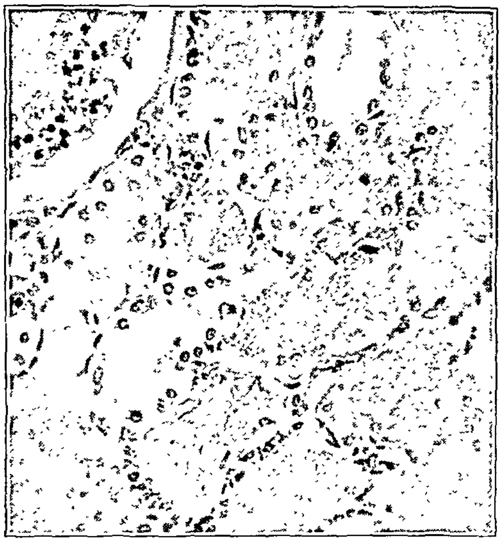

Fig. 3.—Early necrotizing nephrosis (mercury poisoning, fifty hours).

In 67 per cent of the fatal cases the patients died in the first forty-eight hours of shock. More than half of these (thirty-eight per cent) died in the first twenty-four hours (from shock). The next largest number died in the second twenty-four hours (29 per cent) of gangrenous necrosis of the stomach. At this stage, hemorrhagic and gangrenous necrosis of the stomach, cloudy swelling of the parenchymatous organs and beginning necrotizing nephrosis were noted. The colon showed congestion and edema. Two patients who died in two and one-half and three hours, respectively, showed marked alteration in the blood with increased fluidity and failure to clot. Platelet counts and clotting time were not determined. After forty-eight hours, death occurred in about even distribution as to time, up to thirteen days. Beginning with the third day, the intensity of the stomach involvement decreased, and, as early as the sixth day, advanced gangrenous colitis was present.

Table 3.—*Analysis of One Hundred and Sixty-Three Cases*

	No. of Cases	Male	Female	Recovered	Died	Autopsy	Operated On
Proved or positive	57	14	43	63	24	17	9 (6 died) (3 post) (3 recovered)
Duubtful	106	22	84	102	4	0	0

Table 4.—*Mercury Obtained*

Stomach (Lavage and vomitus)	Colon (Irrigation)	Kidney (Urine)
33 cases	18 cases	13 cases

In 21 cases, mercury was obtained from the stomach only
In 3 cases, mercury was obtained from the urine only
In 5 cases, mercury was obtained from the stool only
In the other positive cases, mercury was obtained from more than one source

Kidney damage begins promptly. Seven cases of from forty-eight hours' to seven days' duration coming to autopsy showed principally a severe necrotizing nephrosis, which was present as early as three hours after ingestion and was well marked at the end of twenty-four hours. By the end of forty-eight hours, instances of nonprotein nitrogen of 148, 158, 230, 272 mg. per hundred cubic centimeters of whole blood, i. e., a severe kidney damage with marked retention, were noted. Evidence of healing of the renal lesions in the cases coming to autopsy was noted on the ninth day. Clinically, healing was manifested as early as the sixth day, as shown by the diminution of the nonprotein nitrogen. In some cases, advanced healing had taken place by the thirteenth day with return of the nonprotein nitrogen to normal.

Table 5.—*Duration of Life in Days in Fatal Cases*

	Duration													
	2 to 20 hr.	1	2	3	4	5	6	7	8	9	10	11	12	13
Number of cases.....	9	0	4	2	1	1	1	1	0	2	0	1	1	1

Total cases, 23; autopsies, 17

ANURIA

We were under the impression that anuria occurs frequently, but in this series it occurred only in six cases. Three of these patients recovered and three died. In eight other patients who died of shock in the first twenty-four hours, no urine was obtained. In how many of these anuria might have persisted, had they lived beyond the first twenty-four hours, we do not know.

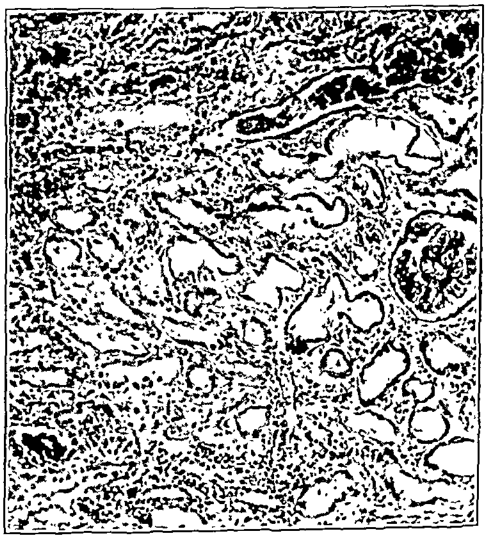

Fig. 4.—Healing necrotizing nephrosis (mercury poisoning, twelve days).

That the kidney damage alone is not the determining cause of death is shown by instances of very severe kidney damage with nonprotein nitrogen retention at the end of forty-eight hours of 148, 158, 230, 272; yet they all recovered. On the other hand, at the end of the same period, some patients who had a nonprotein nitrogen of 170 (maximum) and less died at the end of seven days, when the kidneys were already showing evidences of healing. The determining cause of death in the latter cases was found to be gangrenous colitis of considerable extent.

Gastro-Intestinal Tract: Stomatitis, pharyngitis, esophagitis and gastritis, varying in intensity are constantly present. Ulcerative gangrenous stomatitis was frequently observed in the late cases.

The chief condition referable to the gastro-intestinal tract that we wish to emphasize is the gangrenous colitis. It was present in seven of the cases coming to autopsy. The earliest it was noted in our pathologic material was fifty hours after the ingestion of mercury, when already well marked colitis was present. This patient had a necrotizing nephrosis which was the probable cause of death. In the remaining six cases, from six to twelve days (average nine) elapsed before gangrenous colitis was noted post mortem, in contradistinction to cases coming to autopsy from the second to the sixth day, when necrotizing nephrosis predominated as the cause of death. Two patients who had probable severe lesions in the colon as manifested by pain and diarrhea recovered spontaneously.

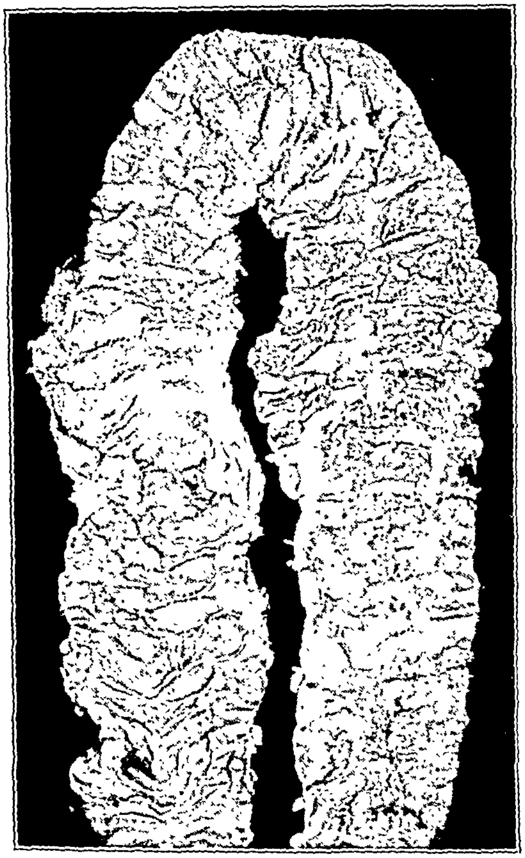

Fig. 5.—Gangrenous colitis.

COMMENT

Kidney involvement is prompt in mercury poisoning. It begins in the first twenty-four hours after the ingestion. Gangrenous colitis appears later, from six to twelve days (average nine) after ingestion. If mercury damages the kidney early and severely so that it is unable to further the elimination of the poison, then the other channels are brought into play, chiefly the colon. The minimizing of the inevitable damage to the colon through constant lavage is reasonable and sound. The earlier this is instituted, the more effective it is in preventing this serious colonic involvement.

In this series it is evident that there were three principal causes of death: (1) shock and hemorrhage which came on promptly; (2) renal damage as early as three and one-half hours after the ingestion and reaching its maximum before the sixth day; (3) gangrenous colitis, from six to twelve days after ingestion, i. e., later than the renal damage. Pathologically, it reached its maximum by the ninth day. Those cases coming to autopsy between the sixth and the thirteenth day showed the most severe lesion to be gangrenous colitis with the kidneys already in a state of advanced healing.

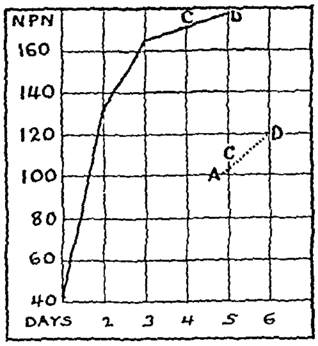

Fig. 6.—Nonprotein nitrogen in cases 1 and 2: dotted line, case 1; solid line, case 2; *A*, admitted; *C*, cecostomy; *D*, died.

SUMMARY

Analysis of 163 cases of mercury poisoning at the Mount Sinai Hospital of Cleveland reveals a number in which the patients survived the usual gastric and renal damage but succumbed to a gangrenous colitis. This lesion was apparently successfully prevented in three cases by constant colonic lavage following cecostomy done within a few hours after the ingestion of the poison.

We believe that immediate cecostomy and constant colonic lavage is the most effective measure for the prevention and treatment of the gangrenous colitis. By immediate cecostomy is meant its performance as soon as the patient is admitted, provided he is not in extreme shock. The diagnosis of mercury poisoning is first established by the detection of mercury in the gastric lavage by the electrolytic method of Booth and Schreiber, which can be done in a few minutes.

ABSTRACT OF DISCUSSION

Dr. B. S. Kline, Cleveland: The demonstration at the clinical pathologic conferences at Mount Sinai Hospital of Cleveland of a gangrenous colitis as the most severe active lesion in mercury poisoning terminating in death after the first week, after the full force of the poison had apparently spent itself and with the kidneys showing evidence of healing, was accepted as a challenge by the clinicians. The answer of Drs. Berger, Applebaum and Young to that challenge is immediate cecostomy. The colonic lesions recorded by Dr. Young are ragged, ulcerated, brownish and greenish and foul smelling.

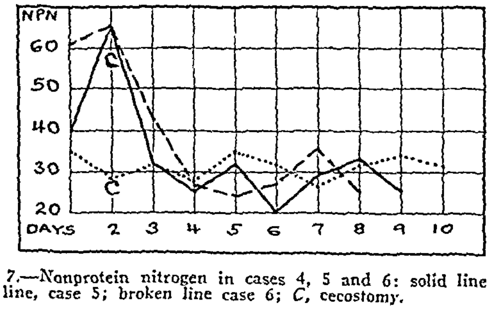

Fig. 7.—Nonprotein nitrogen in cases 4, 5 and 6: solid line, case 4; dotted line, case 5; broken line case 6; *C*, cecostomy.

Although circumscribed and on the crests of the folds at first, they extend and coalesce and finally involve a considerable portion of the inner coats of the colon. A similar lesion occurs in the lower ileum occasionally. In the lesions are found many intestinal bacteria, including filiform and fusiform bacilli, and occasionally intestinal spirochetes are present. The lesion is probably brought about in the following way: Circulating mercury is excreted not only by the kidneys but also through the mucosa of the alimentary canal. After the kidneys have been severely damaged by the heavy metal, more and more of it passes through the colonic mucosa and damages it sufficiently to allow certain regional bacteria to invade, colonize and produce the gangrenous lesion. Here, then, is a true example of the much abused phrase "the lowering of resistance of tissue." Mercury similarly reduces the resistance to infection of the gingival mucosa, sometimes even after small therapeutic doses. After the gingival mucosa is damaged sufficiently by the mercury it is invaded by oral spirochetes, fusiform bacilli and vibrios and a gangrenous gingivitis results. It is reasonable to believe that constant colonic lavage, by diluting the mercury at least after its excretion through the colonic mucosa and especially by interfering with the invasion and colonization of pathogenic bacteria, may prevent the development of gangrenous colitis.

Dr. E. B. Krumbhaar, Philadelphia: It is not for a pathologist to evaluate the possible damage of a major operation to an individual already poisoned, such as cecostomy would be in the present instance, but I wanted merely to raise that point and to suggest the possibility that it would be preferable to hold this as an interesting suggestion until Dr. Berger and his colleagues or others had obtained additional information on the subject. Their cases indicate clearly that, if the operation is to be used early, immediate cecostomy gives the best results. On the other hand, their figures and those of others show that many persons with mercuric chloride poisoning will get well under the present methods of treatment, and it is impossible immediately to have any idea whether the person is going to die or get well. In the fatal cases death usually occurs in the first forty-eight hours after ingestion of the mercury. The authors' figures showed that in the fatal cases 67 per cent of the patients died within twenty-four hours, a further 29 per cent within the next twenty-four hours. If I am correct in this, that gives the astonishing figure of 96 per cent of the proved cases fatal in the first forty-eight hours. It is difficult to believe that cecostomy will turn the tide in most of these cases, so that one is taking many patients that are going to recover anyhow, a certain number that are going to die in the first forty-eight hours, and others who are on the borderline and submitting them to what must be a serious operation, in the hope of helping a relatively small number who otherwise are going to succumb much later. My experiences at the autopsy table support the authors' statements in regard to the importance of the colonic lesions, and particularly in the case of persons dying earlier. In one of their tables it was shown that even in what one might call the kidney period there were variable colonic lesions. I have also found that even in persons dying one, two or four days after ingestion of the mercury there would be marked colonic lesions which possibly would have gone on to gangrene, so that immediate cecostomy and colonic lavage is indicated as useful right from the start for those persons who would not have died within the first day or two. I feel, therefore, that one may draw two important conclusions from the authors' interesting contribution: One is that this is an extremely interesting problem, solvable by experimental methods; the second is that until the information that such studies may give is available, it would be better to consider this procedure as still in the experimental stage.

Dr. Samuel Goldblatt, Cincinnati: It is known that in persons taking mild mercurous chloride, receiving mercury for syphilis or utilizing other drugs in which the metal occurs as a contaminant, one may find the mercury in the gastric secretions and fecal material passed by the patient for a long period. In the Cincinnati General Hospital in 1927, of some 38 patients in whom a diagnosis of mercurial poisoning was made, 19 were found not to have been given mercury at all. Of the remaining 19 patients, 15 got well and 4 died. In the 4 fatalities, all types of treatments were utilized. In my experiments on dogs, whether I gave the tablet as dry powder, in aqueous solution, in milk, with calcium sulphide, or immediately followed by sodium thiosulphate, the animals all died if they were permitted to retain the material for thirteen minutes or more. Therefore, I believe that the authors are continuing a fallacy when they state that it makes a difference whether the tablet is taken as a dry powder or in solution. My experience indicates that patients who do not retain a lethal oral dose for fifteen minutes will recover regardless of treatment. They may show severe symptoms of mercurial poisoning but no fatalities. The emesis interval is the most important index clinically and experimentally available at present which indicates whether or not a person or an animal subjected to mercury by mouth will recover. I was greatly surprised that no mention of disease of the liver was made. I have always been impressed with the marked pathologic changes in the liver. They are visible especially as a mottled, fatlike degeneration of the hepatic cells, and as a great distention of the gallbladder. I also found at autopsies of animals and in some human beings that the region of the duodenum immediately surrounding the entrance of the common bile duct was hemorrhagic, just as hemorrhagic as was the colon. Following this lead, I devised a treatment, used solely in the experimental animal, of immediate cholecystostomy. It was intended to add another portal of discharge for the mercury. It has been shown that 95 per cent of the mercury taken by mouth is concentrated in the liver within the first hour after ingestion. If, therefore, a person is actually poisoned by mercury, the treatment that produces the most rapid excretion from the liver would be the procedure of choice.

Dr. A. A. Herold, Shreveport, La.: I believe that the persons with mercurial poisoning who have come under my observation and who survived initial shock have all died by the renal route with acute suppression of urine. There have been so many of these cases that the physicians in one of the clinics in my home town have established the routine of doing an immediate renal decapsulation when they get a patient with acute mercurial poisoning who is not severely shocked. They have had good results in the cases in which they have been able to do it early. I am simply mentioning this in passing because the patients who have died in my experience have not died by the intestinal route.

Dr. Samuel S. Berger, Cleveland: Undoubtedly many patients with mercuric chloride poisoning will get well regardless of the treatment instituted. What one cannot tell is which patients will recover and which will not. We are simply recommending this suggestion to cope chiefly with one phase of mercury poisoning, namely, the factor of the colon, which we have found to be extremely important. We pointed out that there are three chief causes of death in mercuric chloride poisoning: First is shock, which occurs in the first forty-eight hours. We said that in the fatal cases 67 per cent of the patients died in the first forty-eight hours; 38 per cent of these (67 per cent) died in the first twenty-four hours, and 29 per cent in the second twenty-four hours, in shock. The treatment that is indicated is the overcoming of the shock and the elimination of the mercury, and, if the patients are not in extreme shock, cecostomy in addition. If they survive the shock, they may die of a necrotizing nephrosis. This is the second chief cause of death. We use the established methods in vogue at present for the treatment of the renal complications. We have had no experience with decortication. The reports in the literature do not seem to be encouraging. If the patients survive the renal damage, death may subsequently occur from a gangrenous colitis, which forms the third chief cause of death. The repeated demonstration by our pathologist, Dr. Kline, of gangrenous colitis as a cause of death, led us to seek some method whereby we could obviate this serious complication. We again resorted to cecostomy and lavage, which we had tried years before without results, but we thought to try it earlier, that is, as soon as symptoms of colon irritation appeared, and not as a last resort. This was followed by equally disappointing results; and then finally we tried this procedure before symptoms appeared, as soon as a diagnosis of mercury poisoning was made. Doubtless we cecostomize patients who might recover without the operation but we save a good many of them that would otherwise succumb.

It is a simple procedure and does not add to the mortality, and we feel that it is a highly useful measure and worthy of trial by others. We, too, have observed liver damage in mercuric chloride poisoning, at autopsy, but we wished to emphasize the colonic involvement as an extremely important phase of mercury poisoning, and one of the three chief causes of death, and suggested a method that is helpful in coping with it.

MELORHEOSTOSIS LÉRI: A FLOWING HYPEROSTOSIS OF A SINGLE EXTREMITY

REPORT OF TWO CASES *

ERNEST KRAFT, M.D.
CHICAGO

In 1922, Léri and Joanny [1] described a new type of hyperplastic bone lesion which is confined to a single extremity, extending from one end to the other in a linear track but usually leaving a few unaffected areas along the course. The term "melorheostosis" is derived from the Greek (μέλος, limb; ρέω, flow) and means "flowing hyperostosis of a limb." The disease was independently described three years later by Lewin and McLeod,[2] as an osteosclerosis. Other terms applied by early writers on the subject were "osteosis eburnisans monomelica" [3] and "osteopathia hyperostotica congenita (unius membri)." [4]

Tabular Description of Sixteen Cases of Melorheostosis

No. of Case	Year Published	Author	Extremity	Age	Age of Onset	Years Observed	Sex*	Shortening of Extremity	Lengthening of Extremity	Heterotopy	Histology
1	1922	Léri-Joanny [1]	Left upper	39	10	6	♀	......	....	+	+
2	1925	Lewin-McLeod [2]	Right upper	35	6	..	♂	......	....	..	..
3	1926	Muzii [5]	Left lower	10	5	½	♀	.....	2 cm.	..	..
4	1927	Putti [3]	Left lower	8	7	..	♀	4 cm.	....	..	+
5	1927	Zimmer [4]	Left lower	32	21	..	♂	......	1.5 cm.	..	+
6	1927	Meda, Giulio: Radiol. med. **14**: 885 (Oct.) 1922	Right upper	..	..	..	..	......	....	..	..
7	1928	Valentin [18]	Right upper	17	15	..	♀	3 cm.	....	..	..
8	1928	Meisels [8]	Right lower	25	21	..	♀	3 cm.	....	+	..
9	1929	Kemkes [6]	Right upper	54	42	1	♂	......	....	+	..
10	1930	Milani, Eugenio: Arch. di Radiol. **6**: 70 (Jan.-Feb.) 1930	Right lower	..	..	..	♂	......	....	..	..
11	1930	Léri, Loiseleur and Lièvre: Bull. et mém. Soc. méd. d. hôp. de Paris (**54**): 1210 (July 14) 1930	Right upper	39	29	1	♂	.....	.....	..	+
12	1930	Kahlstorf [19]	Left lower	33	30	1½	♂	......	....	..	..
13	1930	Junghagen [9]	Right upper	..	..	4	♂	......	....	..	+
14	1931	Piergrossi, Aldo: Arch. di radiol. **7**: 20 (Jan.-Feb.) 1931	Right lower	36	14	..	♂	......	.....	+	..
15	1931	Personal	Left upper	40	22	1	♂	......	....	+	..
16	1931	Personal	Right lower	37	23	14	♀	......	....	+	..

5 cases in Italy, 4 in Germany, 3 in United States, 2 in France, 1 in Poland and 1 in Sweden

* In this column, ♂ denotes male; ♀, female.

PATHOLOGY

The disease is characterized by proliferation of ivory-like new bone in the cortical areas. The lesions may assume different forms in different parts of the extremity, sometimes resembling osteoma, at other times suggestive of spurs, periostosis, calcinosis, or osteoplastic malignant conditions. When the proliferative process has caused considerable expansion, the hyperplastic material is of irregular wavy contour, with numerous hills and valleys, forming a linear track parallel to the long axis of the bone. Léri has likened these irregular masses, running downward from the shoulder or pelvis, to the molten stream of a candle. The sharp localization of the process to one side of a bone was compared by Lewin with a condition in which it rains on one side of the street and not on the other. The distribution does not correspond with the course of vessels or peripheral nerves.

Some observers have described stripes of dense bone within the cortex (condensed zones) encroaching on the medullary canal, but it is probable that these are really hyperostotic ridges on the surface of the cortex according to stereoscopic and tangential views. Another characteristic feature is the occurrence of bony masses in the soft parts of the shoulder or hip. These formations are irregular and partly confluent and contain negative shadows caused by islands of cartilage. In spite of bizarre features, a certain similarity in different cases is evident.

As the disease advances, pathologic products are deposited in periarticular areas, occasionally causing complete fixation of a joint. The unaffected parts of bones adjacent or opposite to the hyperostosis frequently show decalcification and rarefaction. There is rarely a bowing of the diseased bones, and, in contrast to other disorders, one finds an extreme compactness of the deformed extremity. Pathologic fracture has never been described in melorheostosis. This feature is characteristic and of importance in differential diagnosis. When the masses assume larger dimensions, pressure on nerves and blood vessels may result in transitory edema, congestion of veins, and neuralgia. Such alarming conditions, however, respond readily to immobilization and tend to disappear in a short time. Tender, indurated erythematous areas are sometimes present on the skin of the affected extremity.

Measurements of circumference of the limbs have not yielded uniform results. In some cases there is much muscular atrophy which causes decreased circumference on the affected side in spite of the fact that the volume of bone is increased. Length measurements have been done in five cases, but the procedure appears to be of no diagnostic value because asymmetry of the extremities is so common in otherwise normal subjects. Further clinical information may be obtained from the accompanying tabular arrangement.

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* From the Division of Roentgenology, University of Chicago.

* Read before the Section on Radiology at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 12, 1931.

[1] Léri and Joanny: Une affection non décrite des os: Hyperostose en coulée sur toute la longeur d'un membre ou mélorhéostose, Bull. et mém. Soc. méd. d. hôp. de Paris **46**: 1145 (July 21) 1922. Léri, André; and Lièvre, J. A.: La mélorhéostose, Presse méd. **36**: 801 (June 27) 1928; La mélorhéostose (Présentation de radiographies), Bull. et mém. Soc. de radiol. méd. de France **16**: 226 (Nov.) 1928.

[2] Lewin, Philip; and McLeod, S. B.: Osteosclerosis with Distribution Suggesting That of the Ulnar Nerve: An Unclassified Bone Condition, J. Bone & Joint Surg. **7**: 969 (Oct.) 1925.

[3] Putti, Vittorio: Una nuova sindrome osteopatica: L'osteosi eburneizzante monomelica, Chir. d. org. di movimento **11**: 335 (June) 1927.

[4] Zimmer, P.: Ueber einen Fall einer eigenartigen seltenen Knochenerkrankung, Osteopathia hyperostotica—Mélorhéostose, Beitr. z. klin. Chir. **140**: 75, 1927.

SYMPTOMATOLOGY

The first signs are noted as a rule during childhood or adolescence. Of fourteen cases, the history began after the period of bone development in only four. Since the onset is quite insidious and the progress extremely slow, it is impossible to obtain reliable data as to the first manifestation. Muzii's[5] patient was 5 years of age and Kemkes'[6] patient, 42 years of age when symptoms began. Between these two extremes the average age of first complaint is 19 years among twelve patients. The spread between onset and first examination was twenty-nine years in the first two cases. The symptoms, even in advanced cases, may be extremely vague. In children the subjective symptoms are more pronounced than in older persons, although the roentgen observations are not as striking.

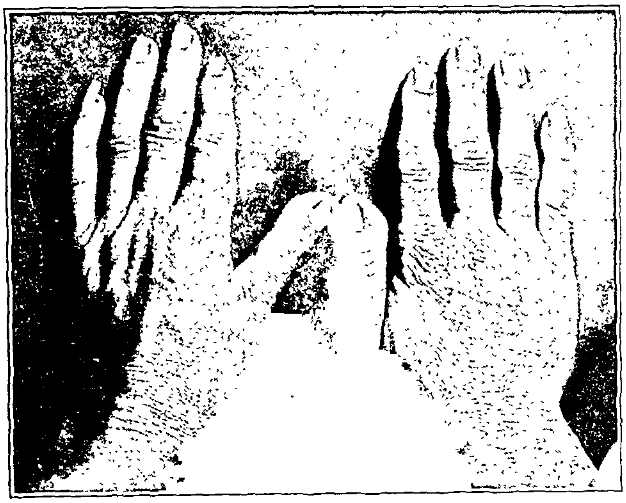

Fig. 1. (case 1).—Striking deformities of left thumb and radial side of index finger. There is a complete fixation of the first metacarpal in midposition.

The first deformities are sometimes accompanied by pain. More often they develop without any symptoms. Invariably the lesions are painful at some stage of their progress. The pain is not intense. It is provoked by strain and pressure and disappears either gradually or suddenly—sometimes for years despite persistent progress of the lesions. The most annoying symptoms are transitory stiffness and limited motion of joints, and the occasional instances of permanent ankylosis.

Case 1 (referred by Dr. E. B. Coolley in June, 1930).—H. W., a man, aged 40, a trainer of horses, during the war served as stable sergeant and contracted severe epidemic spinal meningitis. In 1910 he dislocated his left shoulder. There was no history of syphilis.

His present condition began in 1913 with a hard nodule at the radial side of the left wrist. A year later the patient discovered a small lump under the left clavicle. In 1922 the radial portion of the index finger had grown thick and uneven. Three years later his left humerus had become enlarged. In 1928 nodules appeared on the left thumb. During the last three years he has had frequent numbness of the arm on exercising and impaired motion of the shoulder. Since 1929 he has occasionally noticed a lancinating pain throughout the extremity and has been unable to bend his elbow completely. Transitory pain has also been noted in other parts of the body, especially in the right arm and hand. Lately his left thumb and index finger have become thicker and increasingly stiff. He never has consulted a physician for his condition.

On physical examination the patient appears perfectly healthy. Physical observations are essentially negative, as are also the neurologic tests, examinations of the urine and blood and chemical examination of the blood, including calcium and phosphorus. The Wassermann and Kahn tests are negative. The electrocardiogram is within normal limits.

The left shoulder is somewhat elevated. A hard, nodular, slightly movable mass, the size of an apple, bulges under the skin in the subclavicular groove. Several smaller nodules of cherry size are felt within the pectoralis major muscle. The upper arm is large and deformed. On deep palpation a wavy mass of bone is felt in the distal humerus, bulging under the biceps muscle. There is a moderate thickening of the radius. The thumb and the radial side of the index finger and the wrist show gross deformities with multiple hard nodules bulging under the skin (fig. 1).

The muscles of the left arm are slightly underdeveloped as compared with the normal right side. Motions of the left shoulder are limited as to high elevation and posterior rotation. This condition, however, varies on repeated observations. Flexion and pronation of the forearm are limited. Dorsiflexion of the wrist is somewhat impaired. There is complete fixation of the first metacarpus and impaired motion of the thumb and index finger. The two arms are of equal length. The affected humerus is enlarged, and the circumference of the left hand is decreased.

On a subsequent examination the affected arm was edematous and showed evidence of venous congestion. In March, 1931, the skin of the left arm presented multiple small erythematous areas and indurations, which were somewhat sensitive.

Roentgen examination (figs. 2 and 3) reveals a large confluent triangular mass of calcium density with irregular borders occupying the left subclavicular space, displacing the clavicle and scapula in an upward direction. The mass overlaps the coracoid process and ends with a downward spur in the anterior parts of the collum scapulae. Another spur overlaps the midclavicle. Numerous smaller nodular densities are projected into the soft parts between the upper humerus and the lateral chest wall. Another identical mass is attached to the cartilagenous junction of the first rib. The anterior humerus is occupied by hyperostotic material with irregular dented borders, while the medullary canal, the posterior parts and the condylar region are not affected. There is a slight interruption of the flow between the upper and middle thirds. The dripping-like deposits become increasingly larger in the distal parts. The hyperostosis continues in the head of the radius, involving the entire bone. The ulna shows only two small spurs below the coronoid process and a moderate posterior bowing of the proximal part. In the region of the wrist only the naviculare, lunatum, multangulum majus and minus are densified. The second metacarpal and the proximal phalanx of the index finger are involved by massive hyperostosis on the radial side, the middle phalanx showing only a slight spur. The first metacarpal and its proximal joint are wrapped in dense masses; likewise both phalanges of the thumb. The unaffected parts of the diseased extremity show varying degrees of decalcification and rarefaction.

The right forearm is slightly curved and the metacarpals of the right hand appear somewhat clumsy, leaving the impression of some developmental disturbance. All other parts of the skeleton are normal. Biopsy material is not obtainable.

Case 2, when reported by Geschickter[7] and others as ossifying periostitis, appeared so similar to previously described cases of melorheostosis of the lower extremity that it was tempting to make further studies on it. Dr.

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[5] Muzii, Mario: Iconografia rara di malattie delle ossa, Radiol. med. **13**: 435 (June) 1926.

[6] Kemkes, Heinz: Ueber einen Fall seltener Erkrankung der Knochen einer Extremität, Arch. f. klin. Chir. **156**: 268, 1930.

[7] Geschickter, C. F.: The Roentgenologic Diagnosis of Bone Tumors, Radiology **16**: 111 (Feb.) 1931.

Geschickter kindly lent his material and furnished the following information:

Case 2.—A. E. D. (a patient of Dr. O. L. Miller, Charlotte, N. C.) a white woman, aged 30, seen in September, 1923, complained of pain in the hip for the past ten days. There was just enough pain to annoy her. In 1916, when she was 23, she had pain and discomfort in the right hip. She had consulted Dr. Baer of Baltimore, who diagnosed the condition as osteomyelitis. It was suggested that she continue to use her leg. Two roentgenograms were taken. The right thigh was slightly larger than the left, and she had about 10 degrees of motion in the hip. There was good position. No operation was done, nor drainage of pus. Since 1916 the patient has considered herself well with only limitation of motion at the hip. She has not consulted a physician in the meantime about her hip. A Wassermann reaction was negative. The leukocytes numbered 14,000.

In January, 1924, the patient was well. No new symptoms appeared; the discomfort in the hip did not bother her at this time.

In April, 1930, the patient was well. A roentgenogram showed the condition in the quiescent stage.

The patient was not seen after this time. Dr. O. L. Miller of Charlotte, N. C., who has kindly cooperated, has renewed contact with the patient and examined her in May, 1931. At this time he noted but little change except for a complete ankylosis of the right hip.

A roentgen examination in May, 1931, revealed the following: The pathologic process involved the right hip and the proximal three fourths of the right femur (fig. 4). The hip was overlapped by irregular confluent shadows of calcium density. The joint was entirely obscured by the abnormal products. Smaller independent shadows were seen on the outside of the large mass between the greater trochanter and the iliac bone. The large mass covered the entire femoral neck and the lesser trochanter. It continued along the inside of the femoral shaft as a wavy ridge of the cortex. In the distal parts the mass became more uniform and regular and faded gradually away. The flowing process continued from the hip downward without interruption. No hyperostosis was seen in the leg or foot.

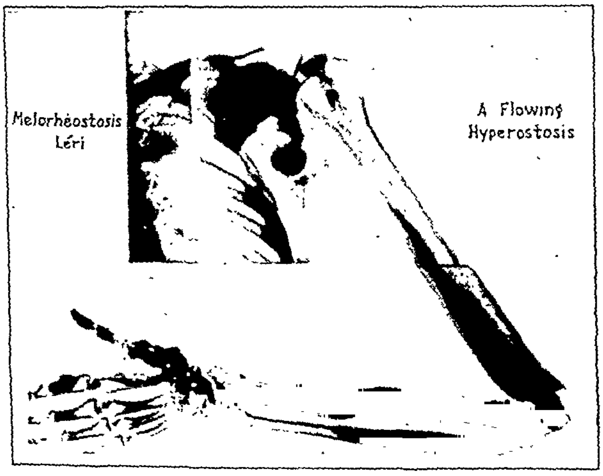

Fig. 2 (case 1).—Composite view of the left arm. Hyperostosis extends from first rib (arrows) in a continuous flow to phalanges.

The case of Meisels[8] (fig. 5) is shown for the similarity of the heterotopic masses in the inguinal region with the subclavicular formations of case 1. The inguinal mass and the hyperostotic flow differ in location from case 2 (fig. 4). The process is on the outside of the femur and extends downward to the lateral parts of the foot, while in cases with lesions on the inside of the femur the flow continues to the medial portions of the foot.

HISTOLOGY

Biopsy studies have been made in five cases. Putti found an abundance of capillary vessels which were partly obliterated. The vascular pathologic condition is a single observation and is not in accord with the observations of other investigators. Léri found a bone marrow rich in cells, islands of cartilage and primitive haversian canals. In his second case he described much irregularity and crowding of abnormal osseous lamellae in various angles. Junghagen[9] mentioned narrowing of lamellae which are elongated and poor in cells. There was, however, always a regular concentric arrangement around the haversian canals. Kauffmann[10] studied Zimmer's case histologically and corroborated the finding of a primitive bone tissue.

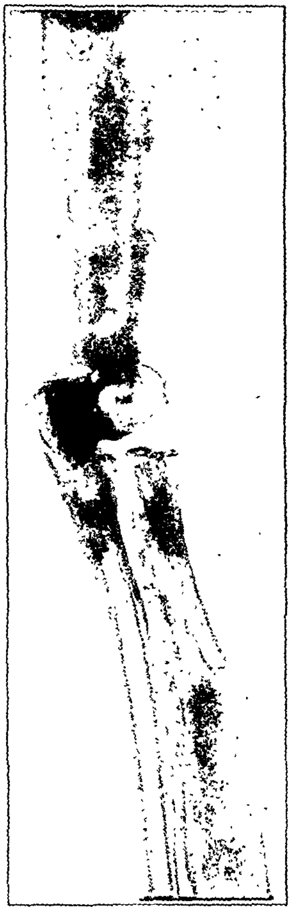

Fig. 3 (case 1).—Anteroposterior view. The hyperostotic spurs of proximal radius and ulna, which are well seen in figure 2, appear like intracortical zones of condensation.

ETIOLOGY

Four theories have been advanced to explain the etiology; vasomotor neurosis, infection, endocrine-constitutional disturbance, and embryonic defects.

1. Putti considered the isolated observations of eosinophilia and of abundant, partly obliterated, capillaries as significant for a lesion of the sympathicus. In his opinion the nutrient arteries were primarily involved, since the dense lines were parallel to the main axis of the bone. With his theory another discussion has been opened: Does vascular obstruction cause sequestration and secondary eburnization of bones, or is an increased blood supply responsible for sclerotic bone changes? Putti's theory does not explain the involvement of small bones, of soft parts in shoulder and hip and the selective distribution.

2. Léri advanced the theory of an infectious agent. He believed that the cutaneous phenomena were caused by embolism, but he did not succeed in isolating parasites. Material transplanted into apes was absorbed in less than a year.

3. The coincidence of Meige's trophedema in the case of Meisels and Goldschlag[11] with the presence of hyperthyroidism and hypopituitarism led to the endocrine-constitutional theory. A craniostenosis in Putti's

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[8] Meisels, Emil: Nouvelle observation de mélorhéostose, Presse méd. **36**: 1466 (Nov. 17) 1928; La mélorhéostose présenté par Léri, Bull. et mém. Soc. méd. d. hôp. de Paris **52**: 1531 (Nov. 22) 1928; Bull. et mém. Soc. de Radiol. méd. de France **16**: 241 (Nov.) 1928; Das Krankheitsbild der Lérischen Mélorhéostose, Röntgenpraxis **1**: 680 (Oct. 1) 1929.

[9] Junghagen, Sven: Sur la mélorhéostose, J. de radiol. et d'électrol. **14**: 495 (Sept.) 1930.

[10] Kauffmann: Demonstration, Zentralbl. f. Chir. **56**: 1631 (June 29) 1929.

[11] Goldschlag, F.: Ueber eine Kombination von Trophödem Meige mit Melorheostose Léri, Dermat. Wchnschr. **89**: 1761 (Nov. 2) 1929.

case and a slight developmental disturbance of the opposite arm in my case (case 1) may substantiate these ideas. Such observations, however, are too infrequent to allow definite conclusions.

Hereditary factors do not play a dominant rôle. The histories are negative in this respect except for a "crippled" hand of the grandfather in Zimmer's case.

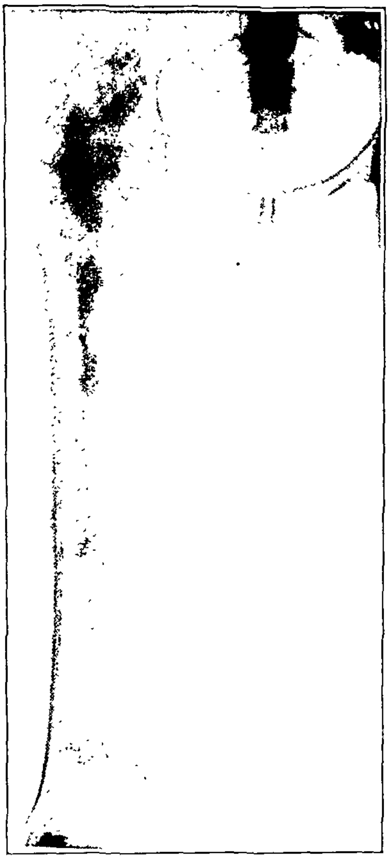

Fig. 4 (case 2).—Characteristic flowing hyperostosis of proximal three fourths of the right femur with heterotopic masses over the hip joint. In Muzii's case the flow extended on the same side downward to the first metatarsal, while in the other cases the lateral parts of the entire extremity were involved.

4. An explanation of the selective linear distribution of pathologic changes is found in Zimmer's theory of a metameric disturbance. Zimmer thought that the hyperostotic bands could be traced to a single truncal segment and he assumed an embryonic lesion prior to the budding process of the extremity. Apparently undifferentiated cells of a metamere become isolated and remain dormant until later in life after they have spread over the limb. These groups of cells seem to lack a synchronous formative stimulus and produce a primitive type of bone according to microscopic observations. Large deposits of calcium are further evidence of their primitive character.

In connection with the embryonic theory, however, some fundamental facts have to be considered. The belief that limbs originate mainly from fused truncal segments is based on the distribution of nerves and their relation to spinal segments by means of the plexus. On the other hand, animal experiments do not support the theory of a metameric construction of extremities. The studies of Harrison,[12] Byrnes[13] and Mangold[14] on amphibia and fish have shown that the unsegmented mesoblast of the somatopleure is a primary factor in the formation of limbs. Lewis[15] has demonstrated that injury to myotomes in the limb region of amblystoma, while producing muscular defects, has no effect on the development of the limb itself. When undifferentiated cells of limb buds and other mesodermic tissue are transplanted to other parts of the trunk, perfect extremities develop and the nerves of these artificial limbs communicate with the spinal ganglions by means of a newly formed plexus. Experiments on higher vertebrates are still lacking in view of the technical difficulties, but so far embryologic studies have failed to support the metameric theory and the exact nature of melorheostosis is still unexplained.

COMMENT

The question of selectivity of a single extremity still awaits a definite solution. Although Léri emphasized the isolated occurrence as characteristic, he observed in his first case the development of heterotopic nodules on the opposite side. Do potential foci of hyperostosis remain dormant in parts of the extremity and in other limbs? Seth Hirsch[16] in his excellent discussion of osteitis fibrosa correlates similar bilateral pathologic conditions with Léri's disease. His view is partly supported by observations of a constitutional disturbance. There is some similarity with a generalized bone disease: infantile osteopathia hyperostotica multiplex—independently described by Engelmann[17] and Seth Hirsch, but additional observations are necessary to decide the question of a generalized involvement.

DIFFERENTIAL DIAGNOSIS

Considering the characteristic features, one may find little difficulty in differentiating the disease from other bone disorders of inflammatory and dysplastic nature. Tuberculous and syphilitic osteitis can be ruled out by history, physical examination and serologic tests. Also malignant neoplasms have to be disregarded in the absence of additional observations.

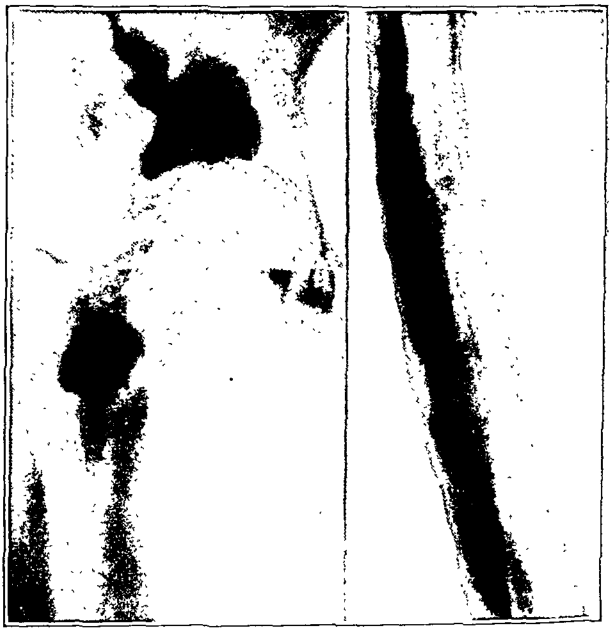

Fig. 5.—Reproduction of Meisels' case (by permission of author). There is a striking resemblance of the subinguinal shadows *with the subclavicular masses of case 1 (compare with figure 2).* The hyperostotic bands are located on the outside of the femur in contrast to the medial course in case 2 (fig. 4).

PROGNOSIS

The disease usually shows a very slow progress and may become stationary for years. The prognosis is favorable. There has never been any evidence of a malignant character. These facts should be kept in mind before any radical therapy is attempted.

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[15] Lewis, W. H.: The Relation of the Myotomes to the Ventrolateral Musculature and the Anterior Limbs in Amblystoma, Anat. Rec. **4**: 183 (May) 1910.

[16] Hirsch, I. S.: Generalized Osteitis Fibrosa, Radiology **12**: 505 (June) 1929; **13**: 44 (July) 1929.

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TREATMENT

No definite therapeutic achievements have been reported. Because of the meager symptomatology the patients are frequently hesitant in submitting themselves to therapy. Surgical correction is rarely indicated. Valentin[18] and Kahlstorf[19] reported relief from heat and physical therapy. In case 1 an improvement was observed when repeated roentgenograms were taken in one session. One has to keep in mind, however, that spontaneous remission of symptoms is a characteristic feature of the disease. It would be instructive to apply radiation therapy systematically. One might then gain a better knowledge of the biology of the abnormal cells and subsequently of the unexplained pathogenesis.

ABSTRACT OF DISCUSSION

Dr. Philip Lewin, Chicago: My interest in this subject dates back to 1923, when Dr. MacLeod showed me a set of roentgenograms of a patient whose case I reported before the American Orthopedic Association in 1925. I searched the literature without success. Then I showed the films to the leading orthopedic surgeons in eleven countries, to many roentgenologists, to neurologists, and finally to Sir Arthur Keith in London. No one was able to classify the condition for me. Some time later, Putti sent me a reprint of an article he wrote on the subject. Then I received a reprint from Léri. Within the last three weeks, I had a long discussion in Paris with Lièvre, an associate of Léri, who is publishing a monograph on the subject. He has collected fifteen cases. He has no conception of the etiology. His experimental work was inconclusive. The theories that one should consider are the neurogenic, myogenic, vascular, metameric and endocrine.

Dr. H. K. Pancoast, Philadelphia: I should like to ask whether there has been any particular study along the line of parathyroid tissue disturbances in these cases. When one analyzes the appearance, in a way it seems to be just the opposite from that which is seen in certain parathyroid cases. The question arose in my mind as to whether a parathyroid hormone had been used experimentally in any case of this kind. There is also a certain similarity in the appearance between this condition and the one that has been described as osteopoikilia by Ledoux-Lebard, in which one sees the small round spots distributed apparently through the medullary portion of the bones in certain portions of the body, especially the pelvis and upper femurs, and even in the lower portion of the lower extremities and in the hands.

Dr. Leon T. Le Wald, New York: Dr. Kraft kindly showed me his case. At first glance I thought it was related to the condition known as calcinosis, but careful study of calcinosis, of which I have had two cases and have seen two others, showed that in calcinosis the calcium deposits are distinctly separate from the bones, although where the masses of deposits of calcinosis are very large they might simulate to a casual observer the possibility that they were related in some way to a bony lesion. I am convinced that there is no relationship unless, as Dr. Pancoast suggests, all these calcium changes are associated with parathyroid disease. Otherwise I should say that calcinosis is in no way related to this particular condition of melorheostosis.

Dr. Ernest Kraft, Chicago: In regard to Dr. Pancoast's remarks, I do not remember any literature on the parathyroid in connection with the disease. Meisels found hyperthyroidism in his case—a single observation which has probably no relation to the bone condition. A theory of the parathyroid would not explain the peculiar distribution over a single extremity. Osteopoikilia, or spotted bones, has been mentioned in the differential diagnosis. The process is within the bone and not expansive. Its distribution is more general, while melorheostosis is confined to one limb. In regard to Dr. Le Wald's remarks on calcinosis, I agree that there is some resemblance. However, calcinosis does not show hyperostosis and presents different histologic changes.

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ACUTE STAPHYLOCOCCAL INFECTIONS OF THE KIDNEY

THEIR CLINICAL ASPECTS AND TREATMENT *

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This paper deals with the discussion of a series of forty-eight cases of acute staphylococcal kidney infection observed and treated at the University Hospital during the past three years. Certain facts concerning the pathology, diagnosis, relationship to secondary invading organisms and treatment that are brought out by these cases are felt to be of particular interest.

The cases here reported did not have any apparent preexisting infection of the urinary tract and were uncomplicated by any discernible obstructive lesions.

INCIDENCE

The staphylococcus is present in a surprisingly high proportion of infections of the urinary tract. Young[1] found it in 49 per cent of 356 cases studied. Helmholz[2] found 15 per cent of all cases studied at the Mayo Clinic to be due to some form of the coccus. Kretschmer[3] found the staphylococcus in 20 per cent of 200 cases uncomplicated by stone, tumor, stricture, prostatic enlargement or tuberculosis. Rovsing[4] in a similarly controlled series found the staphylococcus in 25 per cent of cases. Hellström[5] in 507 cases found it in 30 per cent.

For this series of acute infections the age incidence ranged from 4 to 49 years, the average being 26. Sex incidence showed a preponderance of males, 31 to 17. Involvement of the right side was seen thirty-one times and of the left twelve, with bilateral involvement occurring in five instances.

ETIOLOGY

The question of etiology has been in the past the subject of much study as well as of no little controversy. Since the days of Albarran,[6] who accepted the hematogenous as the most probable route in this type of renal inflammation, which he first described, others have established the fact without question. The contributions of Ekehorn,[7] Legueu,[8] Koch,[9] Runeberg,[10]

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* From the Department of Surgery, University of Michigan Medical School.

* Read before the Section on Urology at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 11, 1931.

[1] Young, H. H., and Davis, D. M.: Young's Practice of Urology, Philadelphia, W. B. Saunders Company, 1926.

[2] Helmholz, H. F., and Amberg, Samuel: Diseases of the Genito-Urinary System in Infancy and Childhood, vol. 19, Clinical Pediatrics, New York, D. Appleton & Co., 1930, p. 140.

[3] Kretschmer, H. L.: The Treatment of Pyelitis, Surg. Gynec. Obst. **33**: 632 (Dec.) 1921.

[4] Rovsing: Klinische und experimentelle Untersuchungen über die infectiösen Krankheiten der Harnorgane, Berlin, 1898.

[5] Hellström, John: Beitrag zur Kenntnis der Staphylokokken Pyelitis, Acta chir. Scandinav. Supp. 6, 1924.

[6] Albarran, Joaquin: Etude sur le rein des urinaires, Thèse de Paris, 1889.

[7] Ekehorn: Om den infectiösa pyelonefriten, Hygiea, 1918.

[8] Legueu: Les staphylococcies d'origine urinaire, Progrès méd. **29**: 394, 1913.

[9] Koch, J.: Ueber das Vorkommen pathogener Staphylokokken auf der Körperoberfläche des Menschen, Ztschr. f. Hyg. u. Infektionskr. **58**: 287, 1907; Ueber die hämatogene Entstehung der eitrigen Nephritis durch den Staphylococcus, ibid. **61**: 301, 1908.

[10] Runeberg, quoted by Hellström (footnote 5, p. 100).

Brewer,[11] Cunningham,[12] Cabot and Crabtree[13] and, more recently, those of Bumpus and Meisser[14, 15] are of particular importance.

In our series, thirty-four cases, or 67 per cent, showed definite foci considered as directly responsible. Of this group, fifteen were acute inflammations of the ear, nose and throat, five were boils, three followed "catheter chill" and three defloration with chill. In regard to the last two factors, the recent work of Scott[16] at the Brady Institute in Baltimore is of great significance. He demonstrated transient positive blood cultures in eighty-two patients having reactions following instrumental or operative manipulations of the genito-urinary tract. In twenty-four cases showing positive cultures of staphylococci, the same organisms were subsequently recovered from the urine. Trauma was an etiologic factor in but one of our cases.

PATHOLOGY

Grossly, the kidney is enlarged from congestion and edema, with multiple small areas of suppuration disseminated throughout the cortex. These small abscesses may enlarge to varying degrees, rarely even involving the entire parenchyma. These more extensive suppurative processes have been described by many authors, who have applied the terms abscess of the kidney, acute renal suppuration, septic infarct of the kidney and renal carbuncle to the lesion. While these severe degress of renal suppuration do occur, I feel that they are extremely rare. Young,[17] Cabot,[18] Bugbee,[19] Baker,[20] Bolton[21] and Hellström[5] are but a few of those who have shared this opinion. Rupture of a cortical abscess through the renal capsule with subsequent perinephric suppuration is a common sequela. The medullary zone rarely shows infection of importance, while the pelvis is practically never inflamed.

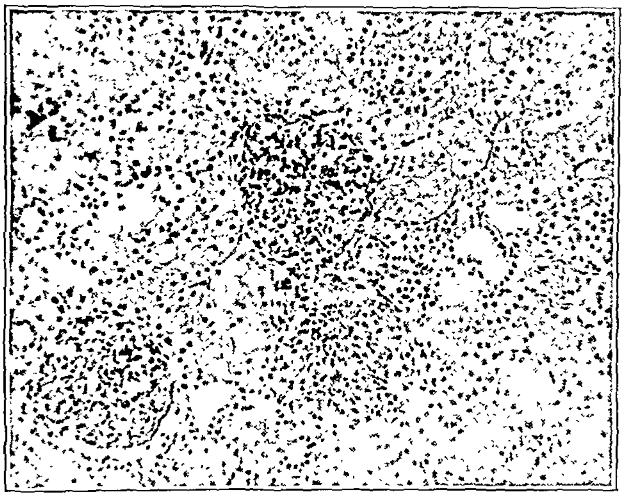

Fig. 1.—Three glomeruli showing active early inflammation with fibroblastic proliferation and increase of wandering cell nuclei. Fusion of capillary loops and Bowman's capsule. (High power; hemalum eosin stain.)

Microscopically, it is apparent that the initial lesion is a glomerular one, from which the inflammatory process extends. Albarran,[6] Rovsing,[4] Brewer,[11] Cabot and Crabtree,[13] Young,[1] Chown,[22] and Wilson and Schloss[23] have amply demonstrated these facts. Characteristically there are many of these microscopic areas of suppuration throughout the cortex. The location of the lesion undoubtedly explains the rarity of pyuria. That healing takes place rapidly has been clearly demonstrated microscopically. The great vascularity of the cortical zone is probably to a large measure responsible for this rapid and complete healing of the infected areas. Photomicrographs made of sections removed from the renal cortex of patient 47 demonstrate all stages of the process, including almost complete healing. The specimen was removed on the eighth day of this patient's illness, when a small perinephric abscess was drained. Wilson and Schloss[23] have shown that when complete healing has occurred there is little evidence of important damage to the renal parenchyma, although microscopic scars are to be seen.

SYMPTOMS

In this series the mode of onset, general symptomatology and progress of the disease have shown a striking uniformity. In all but three instances the onset was abrupt, with pain as the initial symptom, generally accompanied by a chill.

Pain and costovertebral tenderness were present in forty-seven of the forty-eight cases. The pain is generally of moderate severity, typically renal in its location, and constant and aching in character. If extremely severe, it may simulate renal colic, radiating down the course of the ureter to the genitalia. Bladder irritation occurred in but half of our cases. Chills occurred during the course of the disease in thirty-four instances.

Constitutional symptoms of infection are the rule. These include loss of appetite, malaise, general weakness, occasionally prostration and rarely nausea and vomiting. High fever is the rule, many patients having a temperature of 104 or 105 F. The temperature characteristically runs an irregular course as in sepsis elsewhere. The average high temperature in our series was 102 F.

Leukocytosis is constant, not infrequently being high. The lowest count is this series was 9,200, and the highest 33,000. The average was 16,400.

URINE

Gross hematuria accompanied the onset of symptoms in eight cases of this series. In each instance it was of less than forty-eight hours' duration. Microscopic hematuria is by no means uncommon. A trace of albumin is the rule.

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11. Brewer, G. E.: The Pathology, Diagnosis and Treatment of Acute Unilateral Septic Infarcts of the Kidney, New York M. J. **85**: 1013, 1907; The Present State of Our Knowledge of Acute Renal Infections, J. A. M. A. **57**: 179 (July 15) 1911; Acute Hemic Infection of the Kidney, Am. J. Urol. **9**: 549, 1913.

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16. Scott, W. W.: Blood Stream Infections in Urology, J. Urol. **21**: 527 (May) 1929.

17. Young, H. H., in discussion of Mayo, W. J.: Hematogenous Infections of the Kidney, J. A. M. A. **73**: 1023 (Oct. 4) 1919.

18. Cabot, Hugh; and Nesbit, R. M.: Coccus Infections of the Kidney, Ann. Surg. **92**: 766 (Oct.) 1930.

19. Bugbee, H. G.: Infections of the Urinary Tract in Children, New York State J. Med. **25**: 1063 (Dec. 1) 1925.

20. Baker, J. N.: Surgical Infections of the Kidney, J. Urol. **7**: 307 (April) 1922.

21. Bolton, in discussion of Peck, C. H.: Multiple Septic Infarcts of the Kidney, Ann. Surg. **44**: 619, 1906.

22. Chown, Bruce: Pyelitis in Infancy and Early Childhood: A Pathological Study, Arch. Dis. Child. **2**: 97 (April) 1927.

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In every instance the staphylococcus was demonstrated in the urine by staining the sediment, although in some instances its appearancce followed the onset of symptoms by several days. In regard to culture of the urine, it is of interest that in three of our cases repeated cultures were negative in spite of large numbers of the organisms being readily demonstrable in the stained sediments. This is by no means an original observation. Cabot and Crabtree,[13] Helmholtz[24] and Hellström[5] have commented on it. Helmholz[24] has suggested that the bacteria in such cases have possibly been rendered sufficiently devital to fail to respond to the usual culture methods. Hadley[25] has found that during certain phases of development of typhoid, paratyphoid, Shiga dysentery and other organisms it is impossible to grow them satisfactorily on any of the known mediums. He has suggested that some such phase of development has been here encountered in the staphylococcus. In either event it would seem that the method of study of centrifugated specimens by stain could be depended on for accurate diagnosis with greater certainty than by culture.

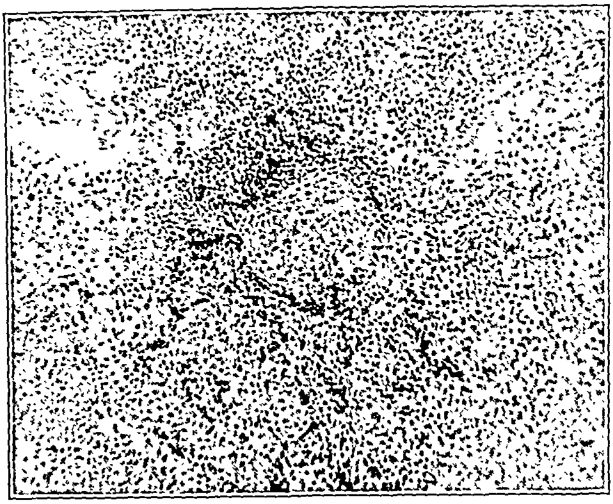

Fig. 2.—Advanced inflammation. Marked leukocytic infiltration surrounding the glomerulus and its capsule. (High power; hemalum eosin stain.)

Less than half of the patients in this series showed leukocytes in the urine at any time during their illness. This absence of cells often leads to incomplete study of the urine, with consequent failure to demonstrate the organisms. Some of the cases here recorded were said to show negative urines by virtue of that error. Subsequent stain of the suspected sediment in these instances revealed the organism.

Secondary invasion of the urinary tract in coccal infections has been long observed and commented on. Rovsing,[4] Clarke[26] and Maxwell[27] as early as 1898 attempted to solve this problem. Their investigations were not rewarded by positive conclusions, though in general they all felt that the coccus so lowered the resistance of the urinary tract that Bacillus coli found a favorable soil for invasion. This view has been shared by many subsequent writers. Chown[22] suggested that the kidney, in overcoming the primary invader, lays itself open to attack by the secondary invader. Bumpus and Meisser[14] have tended toward this view. Helmholz and Millikin[28] conducted animal experiments in which they first produced staphylococcal infections but failed in every instance to produce secondary invasion of the kidney with B. coli. In our series, secondary invasion by the colon bacillus occurred in seventeen instances, appearing from about the seventh to the tenth day and tending to persist longer than the primary invader. With the invasion of the colon bacillus, pus cells always appeared in the urine.

In this series the urine became free from signs of infection on the seventh day in the most favorable instance, the longest being 120, with an average of 35 days.

DIAGNOSIS

Ordinarily, the clinical diagnosis is arrived at without difficulty or delay, except in those rare cases of doubt in which the urine fails to show the cocci for the first few days. In these instances costovertebral tenderness is the most important observation.

Differentiation in atypical cases is sometimes difficult. The lesion most commonly confused is acute appendicitis. The absence of nausea and vomiting and of muscle spasm, with the presence of costovertebral tenderness and high leukocytosis, generally suffices to make the differentiation, even though cocci have not yet appeared in the urine. The tenderness in the right lower quadrant sometimes seen in these patients is probably due to some degree of inflammation of the ureter. This is ordinarily not accompanied by any muscle spasm.

Acute hydronephrosis must be ruled out in some instances. Four of our patients (8, 18, 25, 31) complained of extremely severe renal pain simulating colic and suggesting acute obstruction of the upper urinary tract. Ureter catheterization and roentgen studies were utilized in these instances to establish the diagnosis.

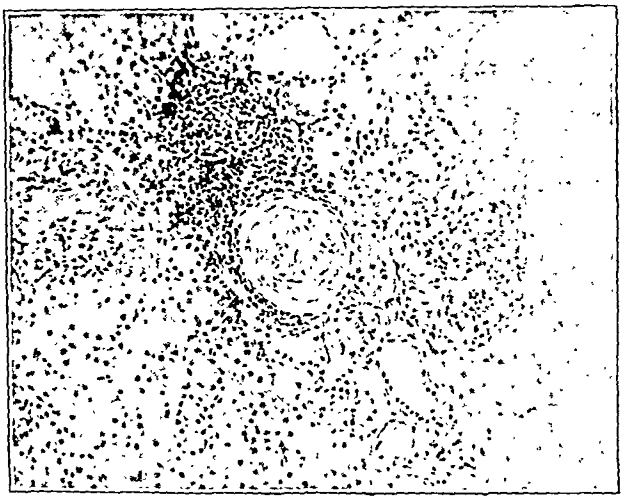

Fig. 3.—Moderate healing. Advanced scarring of glomerulus and thickening of its capsule.

Acute cholecystitis at times offers a difficult differentiation. For example, patient 44, a graduate nurse, was admitted during an attack of excruciating pain in the right upper quadrant, radiating to the back, with associated nausea and vomiting. She was in an extremely toxic condition, having a temperature of

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24. Helmholz, H. F.: Personal communication to the author.
25. Hadley, P. B.: Personal communication to the author.
26. Clarke: A Discussion on the Origin, Effects and Treatment of Septic Infections of the Urinary Tract, Brit. M. J., 1898.
27. Maxwell, J. L., and Clarke, W. B.: The Relation of Bacillus Coli to Other Organisms in the Urine, Brit. M. J. 2: 1472, 1899.
28. Helmholz, H. F., and Millikin, Frances: The Relation of Infections of the Upper Respiratory Tract to Pyelitis, J. A. M. A. 81: 1160 (Oct. 6) 1923.

103 F. There were two severe chills. No urinary symptoms were noted. Examination showed spasm in the right upper quadrant and exquisite tenderness. There was also acute right costovertebral tenderness. The leukocytosis went from 11,000 to 33,000 in forty-eight hours, with a corresponding increase in the severity of symptoms. The urine was repeatedly found to be negative to all tests. Although coccus kidney was strongly suspected, acute empyema of the gallbladder could not be ruled out, and a laparotomy was performed at the beginning of the third day. All abdominal viscera were found to be normal. The kidney was enlarged to palpation through the peritoneum. On the second postoperative day, showers of cocci appeared in the urine, confirming the diagnosis of coccus kidney made in the operating room. The symptoms and signs

Analysis of Forty-Eight Cases of Acute Staphylococcal Kidney Infection

								Urine									
No.; Sex*; Age	Side	Etiology	Onset	Costovertebral	Highest Temperature	Bladder Symptoms	*Leukocytosis*	Cocci	Appeared, Day	B. Coli	Appeared, Day	Pus	Red Blood Cells	Albumin	Duration of Abnormal Urine, Days	Duration of Symptoms, Days	Comments
1 ♀, 20	R	Tonsillitis	Abrupt	Pain, tenderness	101	—	21,000	++	1st	—	—	—	—	—	22	6	
2 ♂, 10	R	Paronychia	Abrupt	Pain, tenderness, chills	103	—	15,000	++	1st	—	—	+	—	—	15	10	
3 ♀, 28	R	Defloration	Abrupt	Chills	?	+	......	+	1st	+	10th	+	—	—	45	30	
4 ♀, 19	R	Defloration	Abrupt	Pain, tenderness, chills	105	+	18,000	++++	1st	—	—	—	++++	++	21	14	Subsequent pregnancy, normal urine
5 ♂, 36	R	Catheter chill	Abrupt	Pain, tenderness, chills	102	—	11,000	+	1st	—	—	—	—	—	10	10	Drainage of cortical abscess, complete recovery
6 ♂, 28	L	Upper respiratory tract	Abrupt	Pain, tenderness	100	—	11,000	+++	1st	—	—	—	++++	++	19	3	
7 ♂, 22	R	Upper respiratory tract	Abrupt	Pain, tenderness	...	+	......	++++	3d	—	—	+++	—	—	15	8	
8 ♂, 21	R	....	Abrupt	Pain, tenderness, chills	100	—	12,000	++	4th	—	—	—	++++	++	14	6	Renal colic, cystoscopic and x-ray examinations neg.
9 ♂, 38	L	....	Abrupt	Pain, tenderness, chills	...	+	......	+++	1st	—	—	+++	—	—	90	15	
10 ♂, 30	L	Tooth extracted	Abrupt	Pain, tenderness	...	+	......	+++	1st	—	—	+++	++++	++	21	10	
11 ♀, 20	L	Tooth extracted	Abrupt	Pain, tenderness	101	+	......	+++	1st	++	12th	—	—	—	23	10	
12 ♂, 56	R	....	Abrupt	Pain, tenderness, chills	103	..	24,000	++++	1st	—	—	++++	++	++	..	..	*Died twelfth day*
13 ♂, 21	R	....	Abrupt	Pain, tenderness, chills	105	+	18,000	+++	1st	—	—	—	—	—	120	..	Drainage of small perinephritic abscess 15th day; cured
14 ♂, 20	L	Boil	Abrupt	Pain, tenderness, chills	104	—	20,000	+++	1st	++	6th	++	—	—	18	15	
15 ♂, 14	L	....	....	Pain, tenderness, chills	105	—	14,000	+++	1st	—	—	—	—	+	35	45	Early diagnosis empyema; dry chest tap
16 ♂, 30	R-L	Upper respiratory tract	Abrupt	Pain, tenderness, chills	...	+	......	++++	1st	—	—	—	—	—	14	35	
17 ♀, 26	L	Tonsillitis	Abrupt	Pain, tenderness	103	+	14,000	++	3d	—	—	—	—	—	12	10	
18 ♀, 17	R	Tonsillitis	Abrupt	Pain, tenderness, chills	100	—	9,200	+++	1st	++	5th	—	—	+	20	7	Renal colic, cystoscopic and x-ray examinations neg.
19 ♂, 56	L	Tonsillitis	Abrupt	Pain, tenderness, chills	101	+	......	++	1st	—	—	—	—	—	5	3	
20 ♀, 25	R	....	Abrupt	Pain, tenderness	90.6	+	......	+++	1st	—	—	++	—	—	30	14	
21 ♂, 49	R-L	....	Gradual	Pain, tenderness, chills	102	+	10,000	++++	1st	—	—	—	—	+	60	21	
22 ♀, 44	R-L	Wound infection	Abrupt	Pain, tenderness, chills	103	+	19,000	+++	1st	+++	7th	+++	—	+	120	55	Bilateral, severe; complete recovery
23 ♂, 35	R	....	Abrupt	Pain, tenderness, chills	102	+	12,000	++	4th	++	10th	++	—	—	30	24	
24 ♀, 55	R	Chronic empyema	Abrupt	Pain, tenderness, chills	104	—	11,000	++	1st	+++	10th	+++	—	—	Cocci, 15 B. coli, 120	..	
25 ♂, 18	L	Upper respiratory tract	Abrupt	Pain, tenderness, chills	104	+	20,000	+++	1st	+	18th	—	—	—	24	18	Renal colic, cystoscopic and x-ray examinations neg.
26 ♂, 4	L	Otitis media	Abrupt	Pain, tenderness, chills	103	—	19,000	+++	1st	—	—	—	—	—	25	17	

* In this column, ♂ denotes male; ♀, female.

Analysis of Forty-Eight Cases of Acute Staphylococcal Kidney Infection—Continued

								Urine									
No.; Sex; Age	Side	Etiology	Onset	Costo-vertebral	Highest Temperature	Bladder Symptoms	Leukocytosis	Cocci	Appeared, Day	B. Coli	Appeared, Day	Pus	Red Blood Cells	Albumin	Duration of Abnormal Urine, Days	Duration of Symptoms, Days	Comments
27 ♀, 25	R	Defloration	Abrupt	Pain, tenderness, chills	103	+	13,500	++++	1st	++	10th	++	++++	+++	Cocci, 20 Bac. 30	12	Onset with total hematuria
28 ♀, 27	R	Tonsillitis	Abrupt	Pain, tenderness, chills	102	—	10,000	++	1st	++	10th	+	—	—	Cocci, 18 B. coli, 90	5	
29 ♂, 18	L	Upper respiratory tract	Abrupt	Pain, tenderness, chills	101	+	15,000	+++	1st	—	—	—	—	—	15	15	
30 ♂, 43	R	....	Abrupt	Pain, tenderness, chills	104	+	14,000	+++	1st	—	—	—	—	—	11	7	
31 ♂, 21	R	....	Abrupt	Pain, tenderness	101	—	19,000	++	1st	—	—	—	+++	—	7	7	Renal colic, cystoscopic and x-ray examinations neg.
32 ♂, 20	R-L	Sinusitis	Abrupt	Pain, tenderness	99.6	—	......	++	1st	—	—	—	—	—	10	3	
33 ♂, 18	R	Catheter chill	Abrupt	Pain, tenderness, chills	104	+	12,500	++++	1st	++	10th	+++	—	—	Cocci, 21 Bac. 40	10	
34 ♀, 22	R	....	Gradual	Pain, tenderness	99.2	+	12,600	+++	1st	—	—	—	—	+	24	10	
35 ♀, 17	R-L	Upper respiratory tract	Abrupt	Pain, tenderness	101	—	11,000	+++	1st	—	—	++	—	+	35	19	
36 ♀, 23	R	Boil	Abrupt	Pain, tenderness, chills	103	+	32,000	+++	1st	++	3d	++	—	—	Cocci, 5 Bac. 25	4	
37 ♀, 26	R	....	Abrupt	Pain, tenderness, chills	103.6	+	13,800	+++	1st	++	16th	+++	—	++	Cocci, 18 Bac. 16	19	
38 ♂, 18	R	Fistula-ano	Abrupt	Pain, tenderness, chills	100	+	14,000	+++	1st	+++	5th	+++	+++	++	Cocci, 14 Bac. 30	15	
39 ♂, 27	R	Catheter chill	Abrupt	Pain, tenderness, chills	104	—	14,000	++	1st	—	—	—	—	—	10	5	
40 ♂, 18	R	Boil	Abrupt	Pain, tenderness, chills	103	—	25,000	++	10th	—	—	—	—	—	21	27	Drainage of perinephritic abscess 16th day; complete recovery
41 ♀, 28	R	Boil	Abrupt	Pain, tenderness, chills	102	—	20,000	+	1st	—	—	—	—	—	21	30	Drainage of perinephritic abscess 18th day; complete recovery
42 ♂, 43	R	Boil	Abrupt	Pain, tenderness, chills	103	+	14,000	+++	1st	—	—	—	—	—	16	13	
43 ♂, 14	R	....	Gradual	Pain, tenderness	102	+	22,000	++	4th	—	—	—	—	—	20	9	
44 ♀, 22	R	Upper respiratory tract	Abrupt	Pain, tenderness, chills	104	—	33,000	+	1st	++	14th	++	—	—	25	16	? empyema gallbladder laparotomy, abdomen negative, complete recovery in 25 days
45 ♂, 15	L	Osteo.	Abrupt	Pain, tenderness,	102	—	17,000	+++	1st	—	—	—	—	—	15	8	
46 ♂, 21	R	....	Abrupt	Pain, tenderness, chills	?	—	?	+++	1st	—	—	—	+++	++	14	10	
47 ♂, 22	R	Trauma, right costovertebral	Abrupt	Pain, tenderness, chills	103	—	14,000	+++	1st	+	9th	+	—	—	21	..	Drainage of perinephritic abscess 8th day
48 ♂, 16	R	Upper respiratory tract	Abrupt	Pain, tenderness	100	—	10,400	++	1st	++	6th	++	—	—	16	—	

had all cleared up by the fourteenth postoperative day, although the urine showed organisms for approximately a month.

COMPLICATIONS

The relationship of coccus kidney to perinephric suppuration has long been recognized. Richardson,[29] Braasch,[30] Mayo,[31] Gibney,[32] Townsend [33] and many others have regarded these kidney infections as the most common cause. This complication arose four times in the forty-eight cases treated at the University Hospital. Other cases of perinephric abscess were of course observed and treated during this period but obviously should not be included in this series. The onset of this complication is heralded by a definite increase in intensity of symptoms and signs, especially local pain and tenderness, and is associated with an increase in temperature as well as leukocytosis. The diagnosis is rarely difficult in cases in which its onset is watched for carefully.

So-called carbuncle of the kidney is a complication which I feel is extremely rare, although many isolated cases have been reported in the literature.[34] Aside from the extreme rarity of this lesion, its diagnosis when it does occur should, I feel, offer little difficulty. The severity of symptoms should invariably indicate a situation demanding surgical relief. Beer[35] has described a few very unusual instances of this type, however, which have been silent so far as acute symptoms and signs are concerned. It is of interest and, I believe, of diagnostic importance that practically every case of carbuncle of the kidney reported in the literature presented a history of from three to nine weeks' illness prior to diagnosis and operation. In practically every instance a coexisting perinephric abscess was found. One is led to speculate as to whether early diagnosis and drainage of the perinephric abscess might not in many instances have prevented the widespread renal suppuration that was found. Habein,[36] in commenting on a series of forty-three cases of perinephric abscess observed at the Mayo Clinic, pointed out the importance of early diagnosis and treatment to prevent renal destruction and general sepsis. In the series mentioned, the average duration of symptoms before diagnosis was from five to six weeks.

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COURSE OF THE DISEASE

Characteristically, staphylococcal infections of the kidney run a stormy course for the first week, followed by marked improvement of all symptoms and signs. Usually by the fourteenth day the temperature has come to normal and the patient is free from pain. Secondary invasion of the urinary tract by B. coli, when it does occur, usually takes place in the second week and generally produces some degree of bladder irritation or intensifies any preexisting urinary symptoms. Some patients show a slight recurrence of fever on being allowed up after their symptoms have disappeared. This rise is always a transient one, passing off in from twenty-four to forty-eight hours. In this series the average duration of symptoms was 14.4 days. When the lesion fails to run a satisfactory course in a reasonable period of time, one of the complications must be suspected. Of special significance in this regard is any marked accentuation of any of the symptoms or signs.

The uncomplicated cases apparently end in complete recovery, except for the undoubted glomerular scars, which probably have no importance so far as renal function is concerned.

One of our cases, showing a bilateral fulminating infection, terminated fatally. Postmortem examination revealed only suppurative lesions of microscopic dimensions.

In the cases here reported, it is of interest to note that in no instance did the acute staphylococcal infection become chronic, a point stressed by Hellström[5] in analyzing his series of thirty acute cases. On the other hand, in eighty cases of chronic staphylococcal infections he found that the onset was almost invariably insidious. Our observations made on a considerable number of the same type not here reported have tended to substantiate his views.

TREATMENT

Most of the earlier writers on the subject have advocated and practiced various operative procedures designed to drain the cortical abscesses, to prevent widespread renal sepsis or even to save life. The operations advised have consisted of some form of drainage of the suppurating areas, by puncture, incision or excision generally with decapsulation. Nephrectomy has also been advocated. Many, however, have reserved this for desperate cases.[37]

In our management of these patients, we have consistently followed a conservative course, considering the disease to be one which tends to run a self-limiting though stormy course within a relatively short period of time in the vast majority of cases. In uncomplicated cases, patients with surprisingly serious infections recover without operation quite rapidly.

In one of our cases surgical drainage of three small cortical abscesses was performed, the preoperative diagnosis being perinephric abscess. Recovery was prompt and complete. In retrospect we doubted the value of the operation, feeling, as Bugbee[10] did in an identical situation, that the patient would undoubtedly have recovered spontaneously.

Our patients were kept in bed during the febrile period, fluids were forced, and the diet was regulated by the patient's desires. Various medications were given orally in most cases but have not clearly demonstrated their worth.

Complications should be treated surgically without delay. The only one occurring in this series was perinephric abscess, occurring four times and representing an incidence of 8.3 per cent. In each instance the diagnosis was promptly made and surgical drainage was instituted with rapid recovery.

SUMMARY

1. Acute staphylococcal infections of the kidney are relatively common.
2. They are hematogenous in origin, a recognizable focus generally being present.
3. The parenchymatous lesion is characteristically cortical in its location and shows a marked tendency to heal promptly and completely.
4. Costovertebral pain and tenderness are constant.
5. Examination of the stained urinary sediment is essential in all suspected cases.
6. The disease tends to run a stormy though self-limiting course, ending in complete recovery.
7. Surgical treatment should be employed only in cases in which complications develop, of which perinephric abscess is the most common.

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The Abnormalities of Human Beings.—As doctors, our thoughts and energies are concentrated on the abnormalities of human beings. There is no separation of man from his disease or of disease from man. The two are part and parcel of a single unit which needs some further definition for our purposes. What we recognize and classify as a disease picture is, in reality, the kaleidoscopic reactions of a man to some injury. This injury may take the form of invasion of the body by bacteria, the disturbance of the specific function of some organ (diabetes, Graves' disease), or a mechanical defect such as occurs in heart disease.—Longcope, W. T.: Methods and Medicine, *Bull. Johns Hopkins Hosp.* **50**:4 (Jan.) 1932.

INFECTIONS IN THE GENITO-URINARY TRACT, AND COMPLICATIONS

FURTHER ADVANCES IN THE TREATMENT *

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The treatment of infections of the genito-urinary tract depends so much on the type of bacterium which is causing the infection that it seems important to present briefly summaries of the bacteriologic observations from a consecutive series of our cases of bladder, kidney and blood stream infections.

INCIDENCE OF INFECTION

Bladder Infections.—A summary of the observations in a series of 600 cases of bladder infection shows that 351 cases, 58.7 per cent of the series, were infected with colon group organisms, 253 of which were obtained in pure culture. The staphylococci and micrococci were found in 265 cases, in pure culture in 122. After these two big groups there is a rapid drop in incidence. Streptococci were found in 67 cases, 30 of them in pure culture. Although found comparatively seldom, the remaining organisms are by no means unimportant on that account. Among them may be cited Proteus, found in 43 cases, 17 times in pure culture; B. pyocyaneus found in 28 cases, 16 times in pure culture; 6 cases of infection with organisms of the paratyphoid group; 5 cases of infection with organisms of the dysentery group, and 3 of the typhoid group.

Renal Infections.—A review of eighty-two renal cultures covering the same period showed a general parallelism to the bladder series, with certain exceptions. Thus the incidence of colon group infections is lower in the kidney than in the bladder; that of the streptococci is the same. Both Proteus and B. pyocyaneus show higher incidence in the kidney than in the bladder. The same is strikingly true of Staphylococcus aureus, and of the organisms of the paratyphoid group. Certainly the presence of Proteus or of B. pyocyaneus or of the many interesting intermediates of the typhoid-paratyphoid-dysentery groups is not to be regarded lightly.

Blood Stream Infections.—An analysis of 203 cases of blood stream invasion in our cases shows the following incidence: There were 104 cases of colon group invasion, after which there was a great drop, to 27 by members of the staphylococcus or micrococcus groups, 18 Proteus, 9 by members of the typhoid group, 7 by B. pyocyaneus, 5 by the paratyphoid group, 4 by beta streptococci (hemolytic), 4 by gamma streptococci, and 25 in which two organisms were found.

In a previous paper[1] the point was made that in differentiating colon group bacilli, whereas the number of organisms of the B. lactis-aerogenes group (genus Aerobacter) in the intestine is low, varying according to different observers from zero to not more than 26 per cent, in the urine, in a series of 200 cases, the incidence of this organism was about 40 per cent. In the blood the incidence is about 75 per cent of the colon group invasions.

Among the general considerations of interest in the treatment of infection is the problem of the difference of resistance of different bacterial genera to drug action. Thus even among the colon bacilli group there is a striking difference in the inhibitory action of drugs on the two main subdivisions; that is, the organisms most closely related to B. coli, or the genus Escherichia and the organisms of the B. lactis-aerogenes group, or the genus Aerobacter. The accompanying table shows how striking is the difference in action of powerful drugs in their action on these two main groups. B. pyocyaneus has proved by far the most resistant vegetative organism that we have tested. It is wise to determine these general facts before drawing conclusions about any one drug.

Proteus Infections.—Cases of Proteus infection, although less numerous than the coccal or colon group infections, are often of extreme importance. It has been noted that the mortality of Proteus blood stream invasions is 55 per cent. The organism is also the cause of very serious damage in operative wounds, which are usually accompanied by a certain amount of general sepsis. Such Proteus infections not only greatly retard the healing processes but may be associated with very serious systemic and general symptoms. The same applies to infections with B. pyocyaneus and B. thompsoni. The treatment of the open wound and bladder which have become infected with these alkalizing bacilli has shown at our clinic that they are best combated by an active use of irrigations or injections of 1 per cent solution of acetic acid, at the same time giving acidifying drugs by mouth, acid sodium phosphate and the like.

Concentrations of Drugs Invariably Inhibiting Growth in Broth

Drug	Escherichia	Aerobacter
Mercuric chloride	1:500,000	1:30,000
Meroxyl	1:300,000	1:20,000
Merthiolate	1:900,000	1:400,000
Metaphen	1:300,000	1:80,000
Potassium mercuric iodide	1:200,000	1:70,000

THERAPEUSIS

The difficulty of completely eradicating infections of the genito-urinary tract is due to the fact that the bacteria have usually penetrated so deeply that local treatment, whether of the urethra, bladder or kidney pelvis, usually fails to reach the depths of the infection. Although numerous new germicides have been produced, the problem still remains of how best to eradicate deep seated foci of infection.

For many years internal therapeusis by oral administration of drugs has been used, sometimes effectively; but, as a whole, this method has failed. With the development of intravenous chemotherapy, protein and serum therapy, both specific and nonspecific, and shock therapy, much has been accomplished. But, owing to the great difficulty of correctly interpreting results and of evaluating the effect that may be attributed to the treatment, it is often difficult to state positively just what has been and can be accomplished by the different types of therapy. In spite of these great difficulties, we will describe certain methods employed in the treatment of various types of genito-urinary infection, attempt to analyze the results, and draw conclusions as to the efficacy of the treatment.

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* From the James Buchanan Brady Urological Institute, Johns Hopkins Hospital.

* Read before the Section on Urology at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 11, 1931.

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Gonococcus Infections.—These represent a notably difficult therapeutic problem. Whereas a certain percentage of patients with acute gonorrhea are cured or spontaneously get well by simple local or internal therapy, it is well known that in a large proportion of the cases the organisms penetrate deeply into the glands remote from the urinary passages, where they may remain for indefinite periods. The problem here is, from the very beginning, to reach the bacteria which so rapidly penetrate first into the glands along the urethra and then the deeper glands of the bulb, the prostate, the seminal vesicles and not infrequently the epididymides, the blood stream, the joints, and even the heart. Even in the simplest cases of anterior urethritis, the gonococcus is generally to be found in the periurethral glands too distant to be reached by local injections, and, although the deeper organs may never be reached, the infection may remain chronic for many months or years. Consideration of these facts led us to use a combination of local and intravenous therapy, even in cases in which the infection was only a few hours or a day or two old, and we are thoroughly convinced, after a considerable series of cases, that far better and quicker results are obtained by a combination of local antiseptic therapy, injections and irrigations, and intravenous therapy, with mercurochrome-220 soluble or neoarsphenamine, alone or in combination with protein therapy, than we have ever been able to accomplish by local treatment alone.

We are presenting herewith the histories in brief abstract of fourteen cases of acute and chronic gonorrhea, many with complications, to show what may be accomplished in some cases by intravenous mercurochrome. The diagnosis of the gonococcus was always made by the Gram stain or by culture. All the patients received local treatment for urethritis consisting of injections of mild silver protein, strong silver protein, mercurochrome or intravesical irrigations of permanganate or meroxyl in addition to intravenous injections of 1 per cent mercurochrome in doses stated, over a given time. Lack of space prevents giving many details, but all important facts have been noted. In no case were the reactions very severe, nor was there any resultant nephritis or enteritis; the statement may therefore be accepted for each case that the intravenous therapy did no harm. The splendid results obtained speak for themselves. The failures are given in the summary of results.

Case 1.—*Acute gonococcus urethritis.*

W. N. B., a man, aged 32, admitted Nov. 12, 1929, had a urethral discharge of twelve days' duration. The first glass of urine was very cloudy. The prostate and the seminal vesicles were normal. Injections of 13, 15, 18 and 20 cc. of 1 per cent mercurochrome were given intravenously during a period of ten days. Anterior injections of 1 per cent strong silver protein and bladder irrigations of acriflavine hydrochloride, 1: 4,000, were given. Two days after the first injection the discharge had almost completely disappeared, and within a week there was no urethral discharge, and the smear showed no organisms. The urine was clear. Slide smears from the urethra, November 15 and 21, and December 3 and 12 showed no gonococci. The urine was clear, with no shreds, and microscopically negative. The prostate was normal. He was seen again, January 17; he had remained well. Examination was negative.

Case 2.—*Gonococcus urethritis of two months' duration.*

J. A. B., a man, aged 25, admitted, June 15, 1929, had a urethral discharge of two months' duration. Examination showed purulent discharge with gonococci. The prostate was normal. Mercurochrome, 1 per cent, was given intravenously in two injections of 13 and 18 cc. at an interval of three days. There was no marked reaction. After the second injection there was no discharge; the urine showed no shreds and was microscopically negative. The patient received in addition acriflavine hydrochloride 1: 4,000, as anterior injections, and also potassium permanganate 1: 6,000. The patient was discharged apparently well on the twelfth day.

Case 3.—*Gonococcus urethritis of three months' duration.*

J. B., a man, aged 37, admitted, June 9, 1927, had urethritis of three months' duration. He had had gonorrhea fifteen years previously. Numerous gonococci were found on smear and culture. Mercurochrome 1 per cent was given intravenously three times, in 15, 18 and 20 cc. doses, with intervals of two and eight days. The urethral discharge became scanty, and gonococci were not found on the day after the first injection. Negative smears and cultures were made, June 13, 15 and 20. The patient was discharged, apparently well, June 20.

Case 4.—*Chronic gonococcus urethritis and prostatitis of four months' duration.*

R. C. H., a man, aged 37, admitted, March 2, 1929, had a discharge of four months' duration. He had had gonorrhea fifteen years before.. The discharge was not profuse; it contained a small number of gram-negative intracellular diplococci and gram-positive diplococci. Culture was negative for gonococci and positive for the gram-positive diplococcus. The diagnosis was subacute prostatitis and acute epididymitis. Urethral injections and intravenous injections of 1 per cent mercurochrome, in 12, 15 and 18 cc. doses were given with intervals of two and four days. There was improvement in the infection and rapid reduction in the size of the prostate. Slide smears from the urethra were negative, March 8, 9 and 13. The patient was discharged, March 14; there was no urethral discharge. Urine cultures were sterile; the prostate was small and slightly indurated. He returned four months later; there was no urethral discharge; the prostate was normal in size; the seminal vesicles were slightly indurated; the urine was clear, with no shreds, and cultures were sterile.

Case 5.—*Gonococcal urethritis, prostatitis.*

H. S. B., a man, aged 25, admitted, Feb. 4, 1925, had had urethritis for three months. There was a profuse urethral discharge. Gonococci were present. The prostate was enlarged, indurated and moderately tender. The prostatic secretion showed many pus cells. Urethral injections of meroxyl and strong silver protein were given. The urethritis persisted. Gonococci were present, February 21. He received intravenous mercurochrome, 1 per cent, twice, 14 cc. February 23, 19 cc. three days later. Following this he was entirely free from symptoms, except for an occasional mucoid urethral discharge, which contained no gonococci. March 5, the prostate was smaller than on admission. There were no urinary symptoms. No gonococci were found. There were a few shreds in the urine.

Case 6.—*Acute anterior gonococcus urethritis, superimposed on old prostatitis.*

J. H., a man, aged 23, admitted, Nov. 29, 1924, had had gonorrhea seven years before, and urethritis for one week. He had a pronounced urethral discharge; gonococci were present. Pus was found in the first glass of urine.. The prostate was slightly enlarged; the seminal vesicles were normal. Injections of mercurochrome, 1 per cent, intravenously, in 30, 30 and 20 cc. doses, were made during two weeks. There was no marked reaction. There was a prompt disappearance of gonococci. None were found in urethral smears, December 2, 6 and 13 or later. Local treatment with a number of drugs was given. The patient was followed for two months, during which prostatic massage was given for chronic prostatitis. Slide and cultures were negative for gonococci. He was discharged well.

Case 7.—*Gonococcus urethritis of seven months' duration. Old prostatitis and cystitis.*

W. E. O., admitted, Nov. 17, 1930, had had gonorrhea of three months' duration eight years before admission. He had a urethral discharge seven months before admission. Bilateral vasotomy and injection of seminal vesicles were done five months before. On admission the urethral discharge contained gonococci, which were also present in the urine and the prostatic secretion. Urethral injections were given and mercurochrome, 1 per cent intravenously, in 13, 15, 18 and 17 cc. doses over a period of two weeks. No urethral discharge and no gonococci were found, November 20, 21 and 26, and December 1. The prostatic secretion contained pus but no organisms. The reactions from the mercurochrome were slight. Urine cultures on discharge showed no gonococci.

Case 8.—*Acute anterior and posterior gonococcus urethritis and prostatitis.*

C. B. M., a man, aged 63, admitted, Sept. 20, 1929, with acute gonorrhea of two weeks' duration, had a profuse urethral discharge with numerous gonococci. The prostate was enlarged and very tender. The temperature ranged from 103 to 105 F. Urethral injections and intravenous injections of mercurochrome, 1 per cent, were given in 12, 15, 18 and 20 cc. doses in eleven days. The reactions were slight. After the third injection there was no urethral discharge. Urethral smears, October 9 and 11, were negative for gonococci, and the prostatic swelling was markedly diminished and less tender. At the end of six weeks, the patient, who had received prostatic massage, was discharged in excellent condition. The urine was clear, only a few shreds being found in the first glass. The prostate was markedly smaller. No gonococci were present. There was no urethral discharge. When the patient was seen six months later the urine was clear and free from infection. The prostatic secretion still contained leukocytes but no gonococci.

Case 9.—*Chronic prostatitis; acute gonococcus urethritis; prostatitis.*

L. R. B., a man, aged 31, admitted, May 9, 1929, had gonorrhea of five weeks' duration. There was a profuse urethral discharge; gonococci were numerous; cultures were positive. The prostate and the vesicles were involved. Urethral injections of mild silver protein and meroxyl were made. Three intravenous injections of 1 per cent mercurochrome were made in 13, 15 and 18 cc. doses in ten days. The reaction was slight. Gonococci disappeared after the first injection and did not return. Slide smears, May 16 and 24, were negative. Treatment for chronic prostatitis was begun and continued for three weeks with improvement. There was no return of the gonococci. He was discharged from the clinic, July 5. The prostatitis was markedly improved. No gonococci had been found on numerous examinations since May 11. Three months later an examination showed no recurrence.

Case 10.—*Acute gonococcus urethritis; epididymitis of three months' duration.*

W. B. S., a man, aged 45, was admitted, Nov. 19, 1928, with gonorrhea of six months' duration. The urethral discharge contained numerous gonococci on slide smear and culture. The right epididymis was enlarged and tender. The prostate and vesicles were apparently normal. Urethral injections were made; intravenous injections of mercurochrome, 1 per cent, in 8, 15, 15 and 20 cc. doses were given in seven days. There was only one pronounced reaction. November 23, a direct smear from the urethra showed no organisms. No gonococci and only a few gram-positive cocci were found on culture. During the next three weeks the patient received local treatment and on two examinations showed no gonococci. He was discharged, December 6; there was no urethral discharge; the prostatic secretion was sterile; the epididymis was "cleared up," and urination was normal.

Case 11.—*Acute gonococcus urethritis of four months' duration. Epididymitis, slight prostatitis and seminal vesiculitis.*

S. G., a man, aged 28, admitted, Oct. 9, 1925, was referred by a prominent urologist, who stated: "The patient has been under treatment for four months for very intractable neisserian infection." One month before he had developed epididymitis. There was a profuse urethral discharge; gonococci were present on examination. There was bilateral epididymitis, moderate and subacute. The prostate was slightly indurated and enlarged. The right seminal vesicle was slightly indurated. Local urethral injections were given. Three intravenous injections of mercurochrome, 1 per cent, 21 cc. each, were given within a week. There was very little reaction. There was however, a pronounced effect on infection. No gonococci were found after the second injection. The patient was examined at various times over a period of six months but showed no return of gonococcus infection.

Case 12.—*Acute gonococcus urethritis and epididymitis superimposed on chronic prostatitis.*

E. W., a man, aged 23, admitted, Dec. 20, 1927, with gonorrhea of five weeks' duration, had had gonorrhea three years before. There was a profuse urethral discharge with numerous gonococci and acute epididymitis. Urethral injections were given and mercurochrome, 1 per cent, intravenously, six injections, consisting of 15, 20, 20, 22, 20 and 15 cc. over a period of seven weeks. Gonococci were not found after the fourth injection, December 29. Treatment was continued for chronic prostatitis until Feb. 10, 1928. Numerous examinations showed no gonococci, but the prostatic secretion contained leukocytes. Cultures were negative.

Case 13.—*Acute gonococcus urethritis, prostatitis and arthritis.*

G. A. W., admitted, June 16, 1924, had had recurrent attacks of gonococcus urethritis for twenty years. He was brought into the hospital on a stretcher. He had arthritis of both knees. Both knee joints were acutely swollen. There was a profuse urethral discharge; gonococci were numerous. A culture of urine and prostatic secretion showed staphylococci. Urethral injections were given; mercurochrome 1 per cent, 28 cc., was given intravenously, July 24, and again, August 20. Three days after the first injection he had almost perfect function of the left knee, and the right was greatly improved. Cultures of the urine and the prostatic secretion were negative, July 26, 28, 31 and August 16. The patient was discharged, August 26, with complete function of both knees. There was no pain. There was no urethral discharge (slide cultures were negative), and the urine and prostatic secretions were normal.

Case 14.—*Acute gonococcus urethritis and arthritis.*

M. J. R., a man, aged 25, admitted, June 15, 1929, had had gonococcus urethritis for three months and arthritis for three weeks. Gonococci were present. There was a very acute tenosynovitis with reddening of the skin in the region of the left elbow. The prostate and vesicles were normal. Urethral injections were given and mercurochrome 1 per cent, intravenously in two injections of 20 cc. each, four days apart. On the day after the first injection there was a marked improvement of the arthritis. June 20 there was no urethral discharge, and the urine was negative. The arthritis was greatly improved. No gonococci were found. The patient returned two years later. There has been no recurrence of urethritis or arthritis. Examination was negative. The patient had developed a stone in the kidney, which was removed successfully at operation by Dr. Colston.

Complicated Acute and Chronic Gonorrhea.—A study of seventy-one cases of complicated acute and chronic gonorrhea, in which mercurochrome was administered intravenously, in addition to urethral injections, or irrigations, as previously stated, shows prompt disappearance of gonococcus infection and urethral discharge in forty cases, or 55 per cent. The effect is described as strikingly rapid in twenty-nine of these cases and excellent in eleven. In the other thirty-one cases the results of the intravenous therapy may be described as probably helpful in five cases, of doubtful value in eighteen cases, and of no effect in eight cases. In eighteen of these cases, however, the treatment was not as complete as we would have wished, generally because of the patient's failure to return. The cases that are included in this list of seventy-one cases comprise urethritis with prostatitis, sixteen cases; with prostatitis and vesiculitis, ten cases; with epididymitis, fourteen cases; with acute gonorrheal arthritis, twenty-four cases. In the twenty-four cases of gonorrheal arthritis we have evidence of the often great value of intravenous injections of mercurochrome in the quick amelioration of the joint condition in all cases, and the complete cure of the gonorrhea and its complications in fifteen cases. In nine cases, 39 per cent, intravenous injections of mercurochrome did not markedly hasten the result of treatment, and in three there was a complete failure.

Confirmation of our belief in the value of intravenous injections of mercurochrome in acute and chronic cases of gonococcus infection is to be found in a number of articles in the literature. Whitman,[2] after a study of a series of acute and chronic cases, says: "The rapid subsidence of symptoms in all, and the abrupt termination of symptoms in some cases was almost incredible to one accustomed to the usual slow methods of gonorrheal treatment." Potter[3] reported the results of intravenous injections of mercurochrome in twenty-four cases of acute gonorrheal urethritis, eight cases of chronic urethritis, eleven cases of acute gonorrheal prostatitis, six cases of gonorrheal epididymitis and seminal vesiculitis, and twenty-five cases of chronic prostatitis, from which he draws the following conclusions: "Mercurochrome-220 soluble is one of the most important new remedies for use in intravenous antiseptic medication. Acute rheumatism, synovitis, myalgia, neuritis, arthritis and other manifestations of absorption from the prostate and seminal vesicles, sites of local infection, will clear up rapidly on the intravenous administration of mercurochrome, as will also a large number of cases of gonorrheal urethritis, epididymitis, prostatitis and seminal vesiculitis." Walther,[4] in a report of 768 cases, said: "I am convinced that a large number of these patients were materially benefited by the dye intravenously, and that its employment appreciably shortened the duration of the infection." Williams and Small[5] report seventy cases of gonococcus infection treated with mercurochrome, together with sugar and foreign protein. Among these, twenty-two, or 31 per cent, were chronic gonorrheal infections, and ten, or 14 per cent, of the patients had had gonorrhea previously. The results obtained by the authors are stated to be: cases cured, thirty-nine, or 55 per cent, and cases apparently cured, but not followed as long as desirable, eleven, or 15 per cent. "Twenty cases were either improved or so recent that sufficient follow-up data are not yet available. All cases showed positive improvement. The average number of days between administration of mercurochrome and negative smears was 12.3 days. The almost immediate relief of pain is a striking characteristic, being particularly noted in the cases of acute epididymitis and cystitis."

Other reports on the use of mercurochrome intravenously in gonococcus infections are to be found in the literature, which has now become very voluminous, but we have mentioned these simply in confirmation of our steadfast belief in the great value of intravenous injections of mercurochrome as an aid in the treatment of both acute and chronic gonococcus infections and its complications. In practically all cases other treatment is necessary. We proved very early that intravenous injections of mercurochrome, or other drugs, did not cause a disappearance of organisms which were in the urethra, the lumen of which is not reached by the blood stream. In a series of cases in which no urethral injections were used, quick sterilization of the urethra was not obtained. By a combination of urethral injections to combat the gonococci in the urethra and chemotherapy to combat organisms which have penetrated deeply into the glands or tissues, a rational and often unusually effective method is presented for attacking this fearfully serious disease.

Infections of Urinary Tract Due to Bacteria Other than Gonococcus or Tubercle Bacilli.—As previously shown, a great variety of organisms are to be found as the infective agents in the lower and upper urinary passages, in the blood stream, and in organs secondarily invaded from the urinary tract. When these bacteria are localized to the bladder and urethra and are fairly acute in character, no great difficulty is experienced, as a rule, in getting rid of the infection, by means of simple antiseptic irrigations or injections, provided all obstruction to free urination is removed. Many such infections are self-limiting or autosterilizing by the simple natural processes. We not infrequently see cases after prostatectomy or vesical operation in which, under no treatment at all, the urine several months later is found to have become sterile. When, however, the process extends more deeply, involving the prostate and seminal vesicles, and particularly the renal cortex (pyelonephritis), it is rarely autosterilized. The cure of such pathologic processes is, indeed, not often obtained by local treatment (vesical or pelvic lavage). In some cases internal urinary antiseptics (methenamine, acriflavine hydrochloride, pyridium and caprokol) may be definitely helpful. Indeed, sometimes the alternate alkalization and acidifying of the urine may be peculiarly effective, but in many cases much more is necessary in order to accomplish results. It is here that intravenous chemotherapy and protein therapy promises much help.

The coccus infections have so far proved to be most easily eradicable by means of such methods; not infrequently many of the staphylococcus invasions of the kidney and bladder quickly disappear after intravenous injections of neoarsphenamine and also of mercurochrome. The following cases are given to show particularly the excellent results that may follow intravenous injections of neoarsphenamine:

Case 15.—*Chronic prostatitis and seminal vesiculitis. Staphylococcus albus infection of urine.*

W. S., admitted, Nov. 19, 1928, with a diagnosis of chronic prostatitis and seminal vesiculitis, and of staphylococcus infection of the urine, had had gonorrhea twenty-five years before, and again four years before. The urine on admission was infected with Staphylococcus albus. Injections were made into the bladder, and prostatic massage was instituted. Because of the persistence of the coccal infection, the patient received neoarsphenamine, 0.4 Gm. intravenously, December 4. The urine, which had been heavily infected the day before, was sterile the day after this treatment, and thereafter on December 8 and 19. The patient was discharged well, December 20.

Case 16.—*Congenital valve of posterior urethra, pyelitis of four years' duration. Staphylococci recovered from both kidneys.*

M. H., a boy, aged 6½ years, admitted, March 5, 1931, with pyelitis of four years' duration, had been treated internally. A congenital valve of the posterior urethra was discovered. The bladder urine was heavily infected with a staphylococcus, which was also found by ureteral catheter in both kidneys, March 10. On this date Dr. W. A. Frontz gave the patient 100 mg. of neoarsphenamine intravenously. The next day no organisms could be found in microscopic examinations of the urinary sediment, but there was a scant growth of the coccus after forty-eight hours of incubation. The urine two days later (March 13) was sterile.

Case 17.—*Acute bilateral pyelitis due to Staphylococcus aureus.*

L. L., a woman, admitted, January 13, had had urinary frequency and pain on voiding for eight days, pain in the region of the right kidney for five days, and pain in the region of the left kidney for one day. Cultures from the bladder and both kidneys by catheterization showed an atypical Staphylococcus aureus. January 14, Dr. W. A. Frontz gave the patient neoarsphenamine, 0.45 Gm. intravenously. The urine, January 15, showed very few cocci and the growth was very scant. January 19, the urine was sterile. The patient was examined several months later; the urine was sterile.

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[2] Whitman, W. A.: Mercurochrome-220 Soluble Intravenously in Chronic Gonorrhea and Complications, J. A. M. A. **82**: 1914-1915 (June 14) 1924.

[3] Potter, J. E.: U. S. Nav. M. Bull. **22**: 542 (May) 1925.

[4] Walther, H. W. E.: New Orleans M. & S. J. **78**: 804-806 (June) 1926.

[5] Williams, L. H., and Small, W. D.: U. S. Nav. M. Bull. **25**: 621 (July) 1927.

Case 18.—*Staphylococcus; pyelitis and chronic prostatitis.*

N. H., admitted, Nov. 9, 1928, had had gonorrhea eleven years and epididymitis three years previously. The left kidney was removed eight months before because of stones. After that he had repeated attacks of pain on the right side. Cultures of the urine from the right kidney, November 20 and 23, showed Staphylococcus albus. November 24 the patient was given 0.45 Gm. of neoarsphenamine. Forty-eight hours later the urine from the right kidney was sterile. The patient was discharged December 1, with sterile urine.

Case 19.—*Chronic prostatitis; acute epididymitis; cystitis; urine cultures showing streptococcus.*

T. S., a man, aged 45, admitted, Dec. 21, 1930, had had hematuria, followed by epididymitis, ten months before. In September, a diagnosis of urethral stricture had been made and a sound passed. The patient entered the hospital with a right epididymitis. There was also a chronic prostatitis and purulent urine, the cultures showing a streptococcus. He received the following intravenous treatment: December 26, mercurochrome, 1 per cent, 12 cc., followed by a mild reaction, subjective improvement and slight softening of the epididymis. December 28, mercurochrome, 1 per cent, 15 cc., with no reaction. The epididymis became much softer and painless. January 1, 0.3 Gm. of neoarsphenamine was given. Epididymitis had subsided before this injection, which was given for the urinary infection. January 3, 0.3 Gm. of neoarsphenamine, and January 5, 0.45 Gm. of neoarsphenamine was given. January 7, 18 cc. of mercurochrome, 1 per cent, was given; the urine still showed coccus infection. January 9, urine cultures were sterile and continued so, but the patient was being treated for prostatitis by massage, and on January 14 a final injection of 14 cc. of mercurochrome, 1 per cent, intravenously was given. The patient was discharged January 24; the urine was sterile. The urine was again examined March 13; the cultures were sterile.

Bacillary Infections.—As shown before, the B. coli group form a large percentage of the bacteria found in infections of the bladder and kidney. Unfortunately, the bacilli are much more resistant to treatment than the cocci. In a good many cases the portal of entry is the intestinal tract, and much can be accomplished by colonic irrigations and other therapy directed to chronic infection of the gastro-intestinal tract. Internal antisepsis, as stated before, should always be tried and in some cases is distinctly effective. By alternating the drug and the method, occasionally surprisingly good results are obtained, but in the majority of cases a bacillary infection is very resistant to all forms of treatment. Local treatment, lavage of the bladder and renal pelvis with various antiseptics, is not infrequently successful, especially if alternation of drugs is carried out. For intravenous treatment one may use acriflavine hydrochloride, methenamine or mercurochrome. Each of these has been responsible for a certain number of fairly rapid sterilizations of the urine. That it is possible in some cases to get good results by the intravenous injection of mercurochrome, the following cases will show:

Case 20.—*Bilateral pyelonephritis due to B. coli-communior. Septicemia following ureteral catheterization. Condition of patient desperate.*

H. A. D., a man, aged 44, admitted, Dec. 30, 1922, had pain in the kidney which was shown on examination to be due to bilateral pyelonephritis due to B. coli-communior. The urine from both kidneys contained the infection but very little pus. Following catheterization the patient developed septicemia and grew rapidly worse, the temperature ranging from 102 to 104.6 F. Blood cultures showed 140 colonies of B. coli to 1 cc. of blood. The patient grew rapidly worse; he became irrational. Medical consultants thought the case hopeless and that the patient would not live more than a few hours. He was given 34 cc. of mercurochrome, 1 per cent, intravenously. This was followed by a chill, a rise of temperature to 103.8 F. and a drop of 6 degrees in four hours. Blood cultures twelve hours after injection were sterile and remained so. The next day the patient felt greatly improved; the urine became sterile, cultures were negative, and he was discharged from the hospital apparently well in seven days. He was seen repeatedly afterward. The urine remained sterile.

Case 21.—*Bilateral chronic pyelonephritis due to B. lactis-aerogenes.*

I. S. G., admitted, Jan. 2, 1923, had bilateral pyelonephritis shown by ureteral catheterization and cultures to be due to B. lactis-aerogenes. Pelvic lavage was done with silver nitrate, 1 per cent, and meroxyl, 1 per cent, unsuccessfully. January 12, mercurochrome, 1 per cent, was administered intravenously, 5 mg. per kilogram. The reaction was moderate. On the following day the urine was found to contain numerous bacilli (dead?), but cultures were sterile. Cultures on subsequent days showed urine still sterile and microscopically no bacteria were found.

Case 22.—*Child with double pyelonephritis due to B. coli. Very septic. Condition bad.*

M. L., a girl, aged 4 years (a Harriet Lane Clinic case), admitted, Nov. 2, 1923, with pain in the right side had a temperature of 102.5 F. and marked tenderness over both kidneys. The urine was very cloudy. Cultures showed B. coli. Leukocytes numbered 19,950. The temperature the next day was 105 F. The patient was very ill. One hundred milligrams of mercurochrome, 1 per cent, was injected intravenously. On the following day the temperature was 98. The patient was greatly improved. There was a slight recurrence of fever, and four additional intravenous injections of mercurochrome, 30 mg. each, were given. The temperature remained normal after the seventh day. The patient felt well, but the urine still contained bacilli.

Combined Coccus and Bacillary Infection.—In cases in which there is a combined coccus and bacillary infection we have frequently employed, with excellent results, neoarsphenamine to eradicate the coccus infection and then mercurochrome to combat the bacillary infection. The following case is one of this type.

Case 23.—*Bilateral pyelonephritis. Cultures of both bacilli and cocci.*

H. P. S., a man, aged 36, admitted, Jan. 12, 1923, had pain in the region of the kidneys, and hematuria. Ureteral catheterization showed pus cells and bacilli from both kidneys and cocci from the left kidney. Pelvic lavage was done intermittently without results until July 3, when he was given 0.3 Gm. of neoarsphenamine intravenously and ten days later another injection of 0.75 Gm. without reaction. Two days later cultures showed that the cocci had disappeared, but the bacilli were still present. July 13, the patient was given 30 cc. of mercurochrome, 1 per cent, intravenously, without reaction. Cultures, July 14, 16 and 17, were sterile. No organisms were found in the urine thereafter.

Fever.—Cases in which the presence of fever gives evidence of an infectious process somewhere may often be treated intravenously to advantage. In cases of prostatic hypertrophy, fever, coming on during the period of preparation, may be due to a periurethral, a periprostatic or a renal infection. The patient often becomes septic, with intermittent chills and fever without physical signs to indicate positively where the focus of infection lies. In such cases we have for a long time employed intravenous therapy with some excellent results. The following case is one of this type:

Case 24.—*Fever and marked evidence of sepsis following prostatectomy. Probable left pyelonephritis.*

J. B. B., a man, aged 61, was admitted, Feb. 26, 1925, with benign prostatic hypertrophy. The urine was infected with both cocci and bacilli. Perineal prostatectomy was done, March 2; convalescence was satisfactory until March 19, when the patient began to have a septic temperature. This continued with evidence of left pyelonephritis, and the patient received 18 cc. of mercurochrome, 1 per cent, intravenously. This was followed by a chill and drop in temperature to 97 F. The next day the temperature remained normal and stayed so. Swelling in the left kidney disappeared, and the patient was discharged, April 11.

Braasch and Bumpus[6] report the intravenous use of mercurochrome 118 times in eighty-two patients with urinary infections. Twenty cubic centimeters of a 1 per cent solution was found the most satisfactory. Reactions were seldom severe. They state that intravenous mercurochrome is particularly effective in acute and subacute infections of the urinary tract, and also of great value in acute general sepsis of various types. In thirty-six cases in which mercurochrome was given for acute pyelonephritis, in twenty-five the temperature returned immediately to normal by crisis and in eleven by lysis.

Septicemia of Urinary Origin.—In previous papers we have given in detail the results obtained by intravenous therapy with neoarsphenamine, gentian violet and mercurochrome in various types of septicemia. The results were not uniform, and while there have been many striking disappearances of the blood stream infection, there have been a goodly number of failures, particularly when some serious lesion, such as pulmonary embolism, remained an infecting focus, from which the infection of the blood continued to recur.

Blood stream infections are divisible into two groups: (1) the simple bacteremias, which are often transient and self-curing, and (2) true septicemias, in which the process is far more serious and usually not self-limiting. In such cases, strikingly good results may be obtained by chemotherapy unless there is an extensive pathologic process which cannot be reached. In previous papers we have presented a considerable number of cases of septicemia of all types of origin with successes and failures following intravenous therapy. We have not space here to discuss this big subject.

EXPERIMENTAL PROOF OF THE VALUE OF CHEMOTHERAPY

It seems remarkable after Ehrlich's great work with arsphenamine, his demonstration that relapsing fever and other tropical diseases could be cured by chemotherapy, and his prediction that in a few years many infectious diseases would be treated by chemotherapy, that so many of the medical profession should still remain hostile to chemotherapy.

In order to answer the objection that we had offered only clinical evidence of the value of chemotherapy, permission was obtained from Dr. Hugh S. Cumming of the U. S. Public Health Service to carry out an extensive series of animal experiments under the direction of Dr. George McCoy, director of the Hygienic Laboratory, in Washington, D. C. This work was done by Hill and Ellis[7] of the bacteriologic staff of the Brady Urological Institute. More than a thousand white mice were used. A pneumococcus strain of high virulence was chosen as the test organism. This pneumococcus was so virulent that the intraperitoneal injection of 0.5 cc. of a 1 : 1,000,000 dilution of a broth culture was invariably fatal within forty-eight hours. A series of 124 mice were treated with 0.3 cc. of a 1 : 1,000 dilution of mercurochrome after inoculation with from 33.3 to 1,000 lethal doses of culture. In spite of the high multiples of lethal doses used, 16 per cent of these animals were saved by mercurochrome alone. A similar series of animals, 440 in number, were inoculated as before with the same dilution of culture, and treated with 0.2 cc. of normal horse serum. As a result, 100 mice, or 22.7 per cent, lived. In an attempt to evaluate the action of mercurochrome when used in small, nongermicidal amounts, and in the presence of serum, a third series of mice were given combined treatment; i. e., 0.3 cc. of 1 : 1,000 mercurochrome and 0.2 cc. of normal horse serum. The inoculations paralleled those in the first two series. Of the 404 mice given the combined treatment, 173 animals, or 42.9 per cent, were saved. This mercurochrome-serum mixture exerted no direct killing action in vitro. It is therefore fallacious to conclude that, because high dilutions of drug in vitro are not active, no therapeutic action may be expected in vivo. The excellent results obtained in these experiments in protecting mice against many multiple lethal doses of pneumococci show clearly that under carefully controlled conditions very definite therapeutic action is obtained, in some cases even under extremely unfavorable conditions.

DOSAGE

Intravenous injections of neoarsphenamine had best be given according to the rules that are usually in force in the treatment of syphilis. In adults one should usually begin with an injection of 0.3 Gm. After an interval of about three or four days, 0.45 Gm. may be given, and then after a similar interval 0.6 Gm. Rarely have we found it desirable to use 0.9 Gm.

Mercurochrome is given intravenously in a 1 per cent solution, and in simple cases, such as gonorrheas and ordinary urinary infections, one should usually commence in adults with 12 cc. After an interval of two days, 15 cc. may be given, and after an interval of three or four days, 17 cc., and after like intervals, 18 and then 21 cc. Rarely is it necessary to go above the latter, although it may be desirable to give several doses of this amount. The interval both with neoarsphenamine and with mercurochrome depends somewhat on the reaction. Should there be a very pronounced reaction it might be desirable to delay a day or two more, or to switch over to another drug.

In coccus infections it is not a bad plan to alternate between neoarsphenamine and mercurochrome. In fulminating cases, such as grave septicemias, when there is no time to be lost, it is usually wise to use larger doses of mercurochrome, at least 3 or 4 mg. per kilogram of body weight, unless the patient is very fat. We have not had nearly as good results in which initial doses of 10 or 12 cc. of a 1 per cent solution of mercurochrome were used in septicemias, as when the initial dose was about 20 cc. The considerable increase in fever which usually comes on in such cases is probably an important factor in the good result that is obtained.

We wish to reassert most positively that these drugs may be used without fear of injury.

CONCLUSIONS

The bacteriology of the urinary tract shows an extremely varied flora and organisms of a wide range of virulence and susceptibility to antiseptics.

B. coli is inhibited by 1 : 500,000 mercuric chloride, whereas B. lactis-aerogenes is not inhibited until the strength of chloride in the broth culture reaches 1:30,000.

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[6] Braasch, W. F., and Bumpus, H. C., Jr.: J. Urol. **15**: 341-349 (April) 1926.

[7] Hill, Justina H., and Ellis, M. G.: Bull. Johns Hopkins Hosp. **44**: 40 (Jan.) 1929.

The alkalizing bacteria are best combated by acids.

The great difficulty of eradicating infections of the genito-urinary tract is due to the fact that the bacteria have usually penetrated deeply into the tissues and glands beyond the urinary passages. On this account, injections and irrigations frequently fail to eradicate the infection.

The use of chemotherapy and protein therapy have been shown to be of distinct value.

A series of complicated gonococcus infections the cure of which was greatly hastened by the use of intravenous mercurochrome, is cited as well as the failures.

Gram-positive coccus infections of the kidneys and bladder are shown by a series of cases to have been eradicated by intravenous injections of neoarsphenamine.

Bacillary infections of the urinary tract, particularly the Aerobacter group, have been shown to be especially resistant, but cases that have responded favorably to intravenous injections of mercurochrome are cited.

Septicemias of urinary origin and cases of sepsis without blood stream infection are shown in some instances to be much benefited by chemotherapy.

The authors reassert their confidence in the great advisability of supplementing local injections and irrigations in urinary infections with intravenous therapy.

ABSTRACT OF DISCUSSION

ON PAPERS OF DR. NESBIT AND OF DR. YOUNG, DR. COLSTON AND J. H. HILL

DR. T. C. STELLWAGEN, Philadelphia: I cannot help approaching this subject from the standpoint of the surgeon and the message the papers carried to me. We all realize that the really dangerous organism to the urologist is Bacillus coli. I feel that the colon bacillus carries with it a very definite mortality rate, of which we do not take sufficient cognizance. I believe the day is coming when in the postoperative management of the stone-bearing case, the prostatic case and the kidney case, the patient will be put on very definite preliminary treatment that will tend to eliminate the inroads of this infection. With that in mind, I have made it a point to attempt an immunization of these patients before any operative procedure. I am glad to see the charts presented by Young, Colston and Hill because I have always felt that we in Philadelphia have not had that beautiful factor of lack of infection in prostatic surgery. It does hold in kidney surgery, but not in prostatic surgery, and when we read the literature we are inclined to think that we have been, perhaps, negligent. The patients do have bacilluria, but many physicians tell us that their patients do not have this complication. I do not intend to pass any aspersion toward Dr. Peacock's technic, but I do feel that with this paper and with his results this clinches more definitely the necessity for postoperative drainage in bladder surgery. I feel that Dr. Nesbit is to be commemorated for his work. This had not been brought to us in a forcible manner before. I am in thorough accord with what he says in regard to staphylococcic infections of the kidney. I think many men have been entirely too radical in the surgical approach to these cases. I believe we resort to surgery too often, when common sense and a little tactful waiting will clear up these conditions We now can put this question of staphylococcus in carbuncle of the kidney. I have seen only three of these and in one the microscope did not reveal anything of particular significance. I was called in consultation in that case with a homeopath. I think none of us would have gone in, but he had courage, and he found a carbuncle of the kidney. I would have let the case run on for a week or ten days longer. Another question I wish to mention is the "blow up" of the prostatic patient about ten to fifteen days after operation. He goes to the necropsy table and his kidney is found to be literally shot with punctate cortical abscesses. These are staphylococcic, and I think they are one of the important problems we have to consider.

DR. EDWARD L. MERRITT, Fall River, Mass.: Some years ago I took up the cystoscopic method of freeing kidney and ureteral stones and it was so successful that I wondered why we could not clear up kidney infections by the same method. Although many of them were of colon bacillus origin, I found I was successful in clearing them up by ureteral dilation and by kidney lavage through the cystoscope and ureteral catheter. Following this I saw three cases of staphylococcic infection of the kidney following some sinus infection as a complication of influenza. These were mild and cleared up under conservative treatment, such as Dr. Nesbit outlined. Last year this small series was increased by a case that I reported before the New England branch of the American Urological Association. That case was regarded as wellnigh hopeless. The patient, a boy, aged 15 years, had an infection of the left kidney, with a high temperature and leukocytosis. By cystoscopic treatment using a heavy ureteral catheter, I was successful in breaking through from the kidney pelvis, and a pure culture of Staphylococcus aureus was secured from this kidney. That kidney was irrigated thoroughly, with excellent results. I think it makes no difference what antiseptic is used, so long as one takes the lid off. The main thing in these cases, as is other infections, is to secure drainage, and if this is successfully done a great deal can be accomplished. This patient recovered spontaneously following thorough drainage.

DR. MEREDITH F. CAMPBELL, New York: Dr. Nesbit said that carbuncles of the kidney are rare. I wish to show a specimen of a rather unique and clinically interesting case. A child was admitted to the hospital at the age of 3 weeks, with furunculosis from head to foot. At the age of 7 weeks, a kidney abscess opened and drained. The child did well for a few days, when the temperature rose to 102 F. and then rapidly declined. At 11 weeks of age, no other pathologic changes being found, the kidney was explored and it was deemed wise to remove it.

DR. BUDD C. CORBUS, Chicago: During the past few years there has been a continuous search for new antiseptics with which to combat infection. While the results at times have been fairly satisfactory we are still a long way from the ideal method of treating infections of the genito-urinary tract. Antiseptics may kill bacteria in a test tube but their action in infected tissue is entirely different. Besredka has stimulated new ideas in immunization by his publications on antivirus. He has called attention to the fact that bacteria, when growing in a liquid culture medium, produce a toxin that is capable, when applied locally or injected intradermally, of producing both local and general immunity. The possibility of using the skin as an organ of immunization is being recognized more and more. It seems probable that in the near future either bacteria or their toxins will be used in the production in the skin of immune substances capable of protecting the body against specific infections.

DR. J. DELLINGER BARNEY, Boston: I think the diagnosis, especially of the mild cases, is one of extreme difficulty and they are put down as everything but cortical abscesses of the kidney, and are often operated on. They are often bilateral, or if not so in the beginning they may become so, and that is a reason for conservatism. Radical surgery, consisting generally of nephrectomy, formerly was the custom. Recently it has been found that one can be very conservative in their handling. Many patients who were very ill have recovered under conservative treatment and watchful waiting, and I have no doubt that the results would be the same as those found at operation in other cases. Many cases in which this condition is not suspected are seen at necropsy. I have seen them after prostatectomy, for example, at necropsy when there were multiple cortical abscesses which had not been suspected at all. All this makes me believe that the adhesions seen in operating on kidneys for other conditions are often due to mild attacks of this nature.

DR. VINCENT VERMOOTEN, New Taven, Conn.: I wish to offer for consideration one point, that is, the examination of the urine by studying a stained smear of freshly obtained urine. A number of years ago, I found that in 33 per cent of instances the cultural report was entirely different from the observations made from the stained sediment of the urine. This seemed so incredible that Justina H. Hill of Baltimore took up the question also and examined 3,000 specimens of urine in this way and took cultures of them. She got the same results that I did. Organisms seen in the smear did not grow out on culture and vice versa. Nesbit, in some instances, found the staphylococcus in the urine without any pus cells; the absence of pus cells was responsible for the fact that on the preliminary examination this was overlooked. In two cases of septicemia I have been able to find organisms with no pus cells in the urine, once the streptococcus and once the staphylococcus. Blood cultures taken at the same time showed, twenty-four hours later, that these patients had a blood stream infection. I think the fact should be emphasized that the stained sediment of a specimen of urine may give indications of a positive blood stream infection before it is possible to obtain blood cultures. In some cases, this will hasten the diagnosis.

Dr. W. F. Braasch, Rochester, Minn.: I wish to call attention briefly to a group of acute infections of the kidney which are not necessarily hematogenous in origin, although I dare say that at times they are. I refer to acute infections of the kidney following instrumentation or manipulation. This may occur with manipulation of either the lower or the upper urinary tract. When it occurs with the latter, the infection is usually ascending. It is observed occasionally following manipulation for stone in the ureter or the passage of a catheter for hydronephrosis. The acute cortical infections that result should be treated quite contrary to the method suggested by Dr. Nesbit. They are usually unilateral at least primarily, but if nephrectomy is delayed the other kidney becomes involved. They are always surgical and the sooner the kidney is removed the better is the prognosis. After the first day or two the symptoms may assume the form of a profound toxemia rather than the usual evidence of acute infection. One cannot be too careful in recognizing these cases and in advising immediate nephrectomy. If delay is permitted, the other kidney becomes infected and the patient may succumb.

Dr. George R. Livermore, Memphis, Tenn.: Along the line Dr. Braasch has suggested, the intravenous use of methenamine is an aid. We make it a rule in all ureteral manipulations to use methenamine intravenously, in doses of 30 grains (2 Gm.). This will mitigate and in time prevent these infections. If the theory of Dr. Corbus is correct, why not use both of these methods?

Dr. J. A. C. Colston, Baltimore: I should like to say a few words about the method we employ in cases of colon bacillus bacteremia. It might be well to state briefly two cases which illustrate certain points. A man, aged 62, with sterile urine before operation, was subjected to perineal prostatectomy without preliminary catheter drainage. Four days after operation a severe chill occurred and a blood culture showed an overwhelming colon bacillus infection. The usual supportive measures, together with intravenous administration of dextrose, were used, but the infection persisted with a septic temperature and the patient died ten days after operation, the blood culture just before death still showing an overwhelming colon bacillus infection. Such a patient we should now treat by intravenous administration of mercurochrome-220 soluble. We do not feel that mercurochrome could possibly sterilize the blood stream, as laboratory experiments have been carried out in the Brady Clinic which have proved that this is impossible. However, we feel that the intravenous use of mercurochrome produces some sort of protective reaction on the part of the body, which reaction plays a most important part in combating blood stream infections. The degree and the severity of this reaction can be largely regulated by the size of the dose. Of its nature, we know nothing. I was interested to hear Dr. Corbus attribute these reactions to the spleen. The second case was that of an elderly woman with a stone in the kidney and a severe urinary infection. Following pyelography she had a severe reaction with chills and fever, and a blood culture showed a very heavy colon bacillus infection. She was given mercurochrome, which produced a moderately severe reaction and a day later the blood culture was negative. However, shortly after this the blood culture again became positive, with chills and fever. Mercurochrome was again given and the culture became sterile. This sequence of events happened a third time, and we began to realize that she was reinfecting herself from some focus. A roentgenogram was then taken which showed that the stone had descended into the lower part of the ureter. The stone was then removed by operation, but the patient's vitality had been so sapped that she was unable to rally. The case was particularly interesting in that on three separate occasions blood stream infection was eliminated by intravenous administration of mercurochrome and I have always felt that if the descent of the stone had been recognized earlier this patient might have been saved.

RESULTS IN CHOLECYSTECTOMY

WITH ESPECIAL REFERENCE TO THE SYMPTOMATOLOGY AND DIAGNOSIS OF CHOLECYSTITIS *

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AND
G. A. DOWLING, M.D.
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Chronic diseases of the gallbladder and bile ducts are at present generally conceded to be the most frequent organic cause of dyspepsia. No chapter in modern medicine is more interesting than the one dealing with the rapid advancement in the recognition of the gallbladder as a cause of gastric symptoms. If one consults the textbooks and reviews the literature of little more than a decade ago, one finds the gallbladder held responsible only for the illness of those patients who suffered recurrent attacks of biliary colic.

The rapid advance in knowledge of gallbladder disease is due almost entirely to the clinician's careful study of the symptomatology, aided to a great extent by the roentgenologist's ability to rule out organic changes in the stomach and duodenum and, of late years, by cholecystography.

In a recent study [1] of 3,000 patients complaining of gastric symptoms, the gallbladder and bile ducts were considered responsible for the symptoms in 21.3 per cent of the series. The approximate relative frequency of abdominal organic disease causing dyspepsia was gastric ulcer 1, gastric cancer 2, duodenal ulcer 5, gallbladder disease 11. That one out of every five patients complaining of gastric symptoms receives a diagnosis of chronic cholecystitis is a relatively constant finding. During the past ten years, our figures relative to this statement have not varied by as much as 2 per cent.

Owing to the fact that disease of the gallbladder is such a comparatively common diagnosis and since nearly one half of the patients receiving such a diagnosis are advised to have their gallbladders removed, we considered it well worth while to ask those patients on whom we had performed cholecystectomies how much benefit they considered they had received from the removal of the gallbladder. Before discussing the results of this investigation, we made a review of the case histories of patients receiving a primary diagnosis of cholecystitis in order to obtain a general idea of the symptomatology and clinical evidence on which the diagnosis of chronic cholecystitis was made. A summary of the observations is here presented. Six hundred histories out of a series of approximately 1,500 diag-

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* From the Mason Clinic.

* Dr. Harrison R. Wesson assisted in compiling the statistics of the results obtained by cholecystectomy.

* Read before the Section on Radiology at the Eighty-Second Annual Session of the American Medical Association, *Philadelphia, June 10, 1931.*

[1] Dwyer, M. F., and Blackford, J. M.: Interpretation of Gastric Symptoms: Clinical and Roentgenological Study of Three Thousand Cases, Radiology **14:** 38 (Jan.) 1930.

noses of chronic gallbladder disease were studied in detail.

Diseases of the gallbladder were diagnosed 395 times in females and 205 times in males, the ratio of incidence, therefore, between females and males being approximately 2 to 1.

The familiar saying that gallbladder disease is a disease characteristic of fat females over 40 years of age is true in the majority of instances, but, as knowledge of gallbladder disease increases, this statement loses considerably in weight. The review of these histories showed that 35 per cent of the patients were under the age of 40 and that 43 per cent of the females weighed less than 140 pounds (63.5 Kg.).

Table 1.—*Comparison of Age of Patients at Onset of Symptoms*

Diagnosis	Percentage		
	Seeking Relief Before Age of	Dating Symptoms Before Ages of	
	45	25	20
Cholecystitis	78	23	9
Duodenal ulcer	66	56	15
Gastric ulcer	36	25	4

In comparing the histories of patients suffering from duodenal ulcer and chronic cholecystitis, it is interesting to note that 50 per cent of our patients with duodenal ulcer stated that the onset of their gastric symptoms began before the age of 25, while only 22 per cent of patients with disease of the gallbladder began to have symptoms before 25 years of age (table 1).

Not many years ago, pain was considered a cardinal symptom of disease of the biliary tract, and many clinicians hesitated before arriving at a diagnosis of gallbladder disease without this as the chief symptom. Dyspepsia has been emphasized of late by various writers as a prominent complaint. Approximately three fourths (72.7 per cent) of the patients in this series sought relief on account of chronic gastric disturbances, and in over half of these the gastric symptoms had persisted for more than ten years. Localized pain or soreness of varying degrees is a common complaint, but only 18.5 per cent gave a history simulating that of one or more attacks of "gallstone" colic.

Table 2.—*Gastric Analyses of Four Hundred and Two Patients Receiving a Diagnosis of Chronic Cholecystitis*

Free Hydrochloric Acid	Number	Percentage	
Absent	98	24.4	55.7
Low (0-20)	126	31.3	
Medium (20-40)	151	37.5	
High (over 40)	27	6.7	

The gastric analysis was recorded in 402 cases. In 55.7 per cent of these examinations, the analysis of the gastric contents showed either the absence of free hydrochloric acid or the presence of a low acidity. In only 6.7 per cent was the free hydrochloric acid above normal. The clinician should hesitate before making a diagnosis of chronic cholecystitis on a patient presenting a history of chronic indigestion in the presence of a hyperacidity (table 2).

The roentgenologist has for many years rendered considerable assistance to clinicians in the diagnosis of chronic cholecystitis. The roentgen evidence of gallbladder disease before the advent of cholecystography consisted chiefly of the demonstration of gallstones on the roentgenogram and of the indirect signs manifested by changes in the contour, position and behavior of the duodenum and pylorus. The degree of accuracy and the value of these observations varied considerably with different roentgenologists.

Before Graham and his associates described a method of examining the function of the gallbladder objectively, we believe that the roentgenologist's chief assistance in the diagnosis of disease of the biliary tract came from the elimination of organic disease of the stomach and duodenum as a possible cause for the dyspepsia.

Four hundred and thirty-two patients in the series had routine roentgenologic examinations of the stomach and duodenum. In 405, or 93.5 per cent, the results of this examination were considered negative. Of the remaining 28 cases, 23 were reported as showing organic disease of the stomach or duodenum. We realize that occasionally a distended gallbladder or extensive adhesions from the gallbladder to the duodenum may cause deformity of the contour of the duodenum or pylorus, but such observations in this series were very infrequent. In 93.5 per cent of the patients examined there was no roentgenologic evidence of abnormalities of the duodenum or pylorus that could be attributed to a distended gallbladder or to adhesions.

Cholecystography has been a great contribution to the chapter on cholecystitis, and the profession is greatly indebted to Graham and his associates for furnishing a method of [illegible]ction of the gallbladder objectively. [illegible] is undoubtedly the best single laboratory test, but it should never be relied on to the exclusion of other data to affirm or deny the presence of disease of the gallbladder. The intravenous method of administering the dye has been used exclusively by us for the past five years. Positive roentgenologic evidence of impaired gallbladder function, such as absence or faint concentration, is strong presumptive evidence of disease of the gallbladder, and this has been found to be true in over 90 per cent of our proved cases. Negative cholecystographic evidence in the presence of good clinical history of gallbladder disease and negative roentgenologic examination of the stomach and duodenum should never deter the clinician from arriving at a diagnosis of chronic cholecystitis. The cholecystograms were considered negative in 21 per cent of patients receiving a clinical diagnosis of disease of the biliary tract. Occasionally it is found that the gallbladder of a nervous, temperamental patient, presenting an indefinite group of abdominal symptoms, fails to cast a shadow after the administration of the dye. Such patients, after a few weeks of medical supervision and encouragement, often show on reexamination a well functioning gallbladder, which emphasizes the fact that cholecystography is a test chiefly of function rather than of disease.

Questionnaires were sent to approximately 300 people who had received surgical treatment for chronic disease of the gallbladder. All these patients were examined by the same clinicians and the same roentgenologist and were operated on by one surgeon. One hundred and fifty-three patients responded to the questionnaire, and these form the basis of this study. We realize that patients are often confused in making out such reports, and therefore we tried as much as possible to ask only a few general questions and to frame these questions in as simple a manner as possible.

These people were asked to answer the following questions: 1. Had they obtained complete relief from the symptoms for which the operation had been performed? 2. If they considered that they had not obtained complete relief, did they consider themselves 75 per cent, 50 per cent or 25 per cent benefited, or had they not received any benefit at all from the operation? 3. Had there been any improvement in their digestive disturbances and if so to what extent? 4. Had they had recurrence of colic? 5. What effect had the operation had on gas and belching? 6. Were they now able to eat certain foods that they could not eat before operation? Each questionnaire was filled out independently by the patient, and no aid or suggestions were given by a physician. The figures here presented are exactly as given by the 153 patients and are based on their own opinions as to the extent of relief derived from the operation.

In reply to questions 1 and 2, regarding the relief of symptoms, obtained by cholecystectomy, 56.2 per cent stated that they had obtained complete relief and 23.5 per cent considered that the operation had relieved 75 per cent or more of their previous complaints. One fifth of the patients in this series (20.3 per cent) answered that they believed that the operation failed to produce the results they had hoped for, as they considered that only one half or less of their symptoms had been relieved by the removal of their gallbladder. Any operative procedure that eliminates the symptoms of 75 per cent or more of a chronic ailment may be considered conservatively in the group of good results, and 79.7 per cent of these patients considered that their operation was a cure for the symptoms for which they sought relief. Other diseased organs besides the gallbladder were removed in some cases, and this may to a certain extent have influenced favorably the end-results in these instances; however, in checking over the surgical records of these patients, we were surprised to find that diseased organs other than the gallbladder had been noted in only thirty-six patients (table 3).

Table 3.—*Relief of Symptoms Following Cholecystectomy*

Degree of Relief	Number	Percentage	
Complete	86	56.2	79.7
75 per cent	36	23.5	
50 per cent	15	9.8	
25 per cent	9	5.7	
None	7	4.5	
Total, 153			

The records of the 20.3 per cent of patients who replied that they had received 50 per cent or less relief of their symptoms following the removal of the gallbladder were carefully studied in order to determine if possible the reason for the failure to obtain more favorable results. The surgical observations on these thirty-one patients showed that the gallbladders of fifteen were definitely diseased, and in ten of these there were stones. Four gallbladders were considered doubtful at operation, but on account of the clinical observations and in the absence of other pathologic evidence they were removed. Among the remaining twelve patients, three had received a preoperative clinical and roentgenologic diagnosis of duodenal ulcer. The surgeon reported that in these three patients no ulcers were demonstrated but that two had a diverticulum of the duodenum and the third a probable duodenitis. A retrocecal appendix was found in eight patients, and in the remaining case no pathologic changes except the scar of a gastric ulcer could be demonstrated.

Table 4.—*Condition of Digestion Following Cholecystectomy*

	Number	Percentage
Much improved	105	70.5
Partially improved	25	16.7
Not benefited	17	11.4
Worse	2	1.3
Total, 149		

Table 5.—*Condition of Gas and Belching Following Cholecystectomy*

	Number	Percentage	
Absent	56	37.8	80.3
Better	64	42.5	
Same	21	14.3	
Worse	7	4.7	
Total, 148			

Seven patients answered that they had received no benefit at all following their operation. The gallbladder in three cases was found markedly diseased, in each case there were stones, and in one of these three cases a subacutely inflamed appendix was also removed. In two cases the gallbladder was described as showing slight evidence of disease, and an apparently normal gallbladder was removed in another patient who subsequently had been classed by several clinicians as a profound neurasthenic. The seventh patient in the group received a clinical and roentgen diagnosis of duodenal ulcer and a surgical diagnosis of duodenitis.

Dyspepsia brings more patients with diseases of the gallbladder to the physician than any other complaint; consequently, the degree of relief of this condition is a fair index as to the benefit derived from the removal of the gallbladder. In answer to the question regarding this condition, 70.5 per cent stated that their digestive disturbances were greatly relieved, 16.7 per cent partially improved, 11.4 per cent not benefited, and two patients, or 1.3 per cent, stated that their digestion was worse following operation (table 4).

Table 6.—*Effect of Cholecystectomy on Food Selection*

	Number	Percentage
Better	94	68.1
Same	42	30.4
Worse	2	1.5
Total, 138		

Gas and belching are common and annoying complaints of most people with diseased gallbladders. These symptoms after operation were either absent (37.8 per cent) or markedly relieved (42.5 per cent) in 80.3 per cent; no change was noted in 14.3 per cent, and 4.7 per cent stated that they considered themselves worse following the operation. The continued absence of free hydrochloric acid in the gastric contents is the cause of the failure of some patients to receive much relief of their digestive disturbances following cholecystectomy (table 5).

Food selection is a frequent complaint. The foods most commonly avoided are rich and highly seasoned foods, fried meats, fats and raw apples. In answer to the question as to whether or not the removal of the gallbladder permitted these patients to eat without distress certain foods that they could not eat before operation, 68 per cent replied in the affirmative. Many patients were very emphatic in their statements relative to this question, affirming that they could now enjoy many foods which previously would have caused them great distress. Thirty per cent stated that they noticed no particular difference following the operation, and only two out of the forty patients who were not benefited stated that they considered that they had to be more careful regarding the selection of food after the removal of the gallbladder (table 6).

Colic is a common symptom in patients with diseases of the biliary tract and is complained of by many in whom it is found at operation that the gallbladder and bile ducts do not contain stones. The exact cause of gallbladder and duct colic not due to calculi has not yet been definitely established. In this series, 11.8 per cent of the patients reported having had one or more spells of colic after the operation. The majority of these attacks, however, occurred in the first few years following the removal of the gallbladder, and in many of these the gallbladder and ducts did not contain stones, as only 45 per cent of the total series were found at operation to have stones.

SUMMARY

1. Chronic cholecystitis is the most frequent cause of gastric symptoms. The diagnosis of this condition by the correlation of clinical, roentgenologic and laboratory observations has reached a high degree of accuracy.

2. Nearly one half (42 per cent) of our patients receiving a diagnosis of chronic disease of the gallbladder are considered surgical patients at the time the diagnosis is made. That the removal of the gallbladder of these patients is a satisfactory procedure is manifested by the fact that 79.7 per cent state that they consider the operation a cure for the symptoms for which they sought relief.

3. The avoidance of certain foods is a common complaint of patients with diseases of the biliary tract. Sixty-eight per cent of the patients in this series stated that after the removal of the gallbladder they could eat without discomfort certain foods which before the operation caused them great distress.

4. Symptoms of dyspepsia, especially gas and belching, were either entirely relieved or greatly benefited in 80.3 per cent of the cases in which operation was performed.

5. The surgeon should not be hasty in deciding against removal of the gallbladder because of its normal external appearance if he knows that disease of the gallbladder was diagnosed only after careful clinical, roentgenologic and laboratory examinations. Lack of the appearance of gross pathologic changes of the gallbladder in situ fails to outweigh careful clinical and laboratory deductions, and failure to remove the gallbladder in such instances is generally followed by a continuation of the symptoms for which relief was sought.

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ABSTRACT OF DISCUSSION

DR. WILLIAM H. STEWART, New York: There are a certain number of cases in which it is difficult to explain why the opaque bile does not enter the gallbladder or, if it does, why there is "no shadow." Defective technic will clear away a few of them, but there remain a number in which one wonders whether there is not some chemical change in the dye after it enters the gallbladder that breaks up the iodine compound and renders the bile nonopaque. One German observer claims that as the result of the inflammation the absorption of the watery bile before concentration has occurred is so rapid that the bile does not become opaque. Lahey and Jordan, who use the intravenous technic, state that in 44 per cent of sixty-five cases of functional or spastic irritability the cholecystographic test gave a "no shadow" but that after five or ten days of bowel management the gallbladder filled normally. I believe that in these irritable spasmodic colon cases there is an associated spasm of the cystic duct, so that none of the opaque bile enters the gallbladder. When the irritation is removed, the bile again enters in a normal manner. If this is true, the obstruction might be classed as functional. The authors of the paper report 21 per cent of negative cholecystographic observations with clinical disease of the biliary tract. This is considerably higher than mine. With the oral method I expect about 15 per cent. It is, however, safe to say that it is very unusual in institutions with which I am connected for the surgeon to operate when the cholecystographic observations are negative. The authors are to be congratulated on the study that they have made in these cases, and particularly on the follow up. After all, the result of surgery of the biliary tract is the important question. Drs. Dwyer and Dowling have shown that in their cases it was well worth while.

DR. JOHN F. HERRICK, Ottumwa, Iowa: It has been my observation that a large percentage of those who complain of trouble in the right upper quadrant are not suffering exclusively from disease of the gallbladder, but in many cases there is a hepatitis. There is at present a discussion as to whether hepatitis or cholecystitis is primary. The general opinion, especially among surgeons, has been that hepatitis is a result of chronic infection of the gallbladder. My feeling is that the primary disease in the average gallbladder case is infection and dysfunction of the liver. If that is true, we are starting at the wrong end and working backward. If the primary disease is infection and dysfunction of the liver with faulty bile secretion, it is easy to understand how cholecystitis would result with all the manifestations that follow. The authors are unusually fortunate in the number of cases relieved by cholecystectomy, because my observation has been somewhat different: The percentage of cases relieved has been considerably lower and many of the patients have complained afterward that they were sorry they had the operation. If one goes back and traces the physiology of digestion with the excess of carbohydrates that we as a people are using and recalls that the liver must convert the carbohydrate into glycogen, it is apparent that the liver may find itself in the position of our agricultural board. It has its elevators all stocked and no place to dispose of the product. The consequence is hepatitis, dysfunction of the liver with defective bile secretion opening the way for inflammation of the gallbladder, secondary to the primary cause, which is this functional liver disturbance. If the radiologist will assist the internist in explaining those cases, he will do valuable work and will establish himself more and more as a consultant.

DR. MAURICE F. DWYER, Seattle: I agree with Dr. Stewart. He has added much to our paper. It is generally agreed that, owing to the lymphatic anastomosis between the liver and the gallbladder, chronic cholecystitis is associated with hepatitis, and also that the infection may spread by the venous route, as the cystic vein draining the gallbladder empties directly into the portal vein. However, some surgeons of large experience state that the so-called objective markings of the liver commonly described as hepatitis are seen more frequently at operation than the so-called normal liver. The physiology of the liver and bile ducts is interesting. There is a lot of work being done at present on the detoxifying power of the liver. Occasionally, at operation, the surgeon finds a gallbladder which objectively looks normal, although the clinical aspects of the case strongly suggest a diseased gallbladder, and discovers that the removal of the gallbladder is followed by the elimination of the symptoms for which the patient sought relief. Whether the removal of the gallbladder establishes adequate drainage of the detoxified liver or not is still open to further investigation. The review showed that 80 per cent of the patients who had the gallbladder removed considered the operation a success. We have also sent out questionnaires to an entirely different group; namely, those in whom we diagnosed chronic gallbladder disease and advised operation between five and fifteen years ago, but who for some reason or other refused operation. We were interested in knowing what became of these patients. All questionable diagnoses were eliminated, and we considered only those histories which, from the clinical and roentgen evidence, seemed to indicate with reasonable certainty an infected gallbladder. The summary of this investigation was that one third of the patients treated medically came to operation from three to five years after the diagnosis was made; one third, because of continuation of their symptoms, should have come to operation, and one third were relieved of their symptoms. Patients who have allowed their gallbladder symptoms to go on for a number of years and whose gastric acidity has become low or absent, with definite or permanent pathologic changes in the liver, cannot expect to get as good results following cholecystectomy as those who come to early operation. Ability to eat all kinds of food is 30 per cent more likely to be obtained from early operation than from either late operation or medical treatment. There may be a lot of truth in the saying that "an apple a day keeps the doctor away," but an apple a day eaten by a patient with an infected gallbladder often causes the doctor to come a-running; it is surprising to note the number of people with chronic gallbladder disease who cannot eat a raw apple without great distress.

PRACTICAL POINTS IN OPHTHALMIC PRACTICE

A STUDY OF RECENT FOOD RESEARCHES *

LAURA A. LANE, M.D.
MINNEAPOLIS

Since early times, the existence of a relationship between diet and certain diseases of the eye has been recognized. Early Egyptian literature tells of people living on special diets, seeing poorly at twilight, and the cure of this hemeralopia by the feeding of liver.

Egypt was the greatest grain raising country of antiquity. Grass grazing land, cattle and dairy products were scarce. These conditions have continued and may be responsible for much of the eye disease existing in Egypt today.

EFFECT OF FAULTY DIET ON THE EYE

Chow[1] states that one of the most constant signs of a food deficiency is a pigmentation of the conjunctiva with reduction of the light sense to half normal or less and that 65 per cent show the reduction without signs of an avitaminosis as Bitot spots or prexerosis of the cornea. Ejler Holm[2] has shown that the retina is rich in vitamin A. An avitaminosis may cause an increase of lipoids in the outer segment of rods and a decrease of the visual purple. An excess of carbohydrates may cause serious eye disease. Shoemaker[3] and Sinskey, Levin and Sachs[4] cite cases of episcleritis completely controlled by the withdrawal of excessive carbohydrates and the resuming of a proper diet.

Reeder[5] and others call attention to retinochoroiditis developing in persons on high carbohydrate diets. Cloudy vitreous and other symptoms improve on correcting the diet.

G. M. Findlay[6] reports an outbreak of conjunctivitis and atypical pneumonia in a school near Edinburgh. Similar outbreaks had occurred; no form of treatment relieved the conjunctivitis. The food, in order to save expense, was prepared in large caldrons and boiled from three to four hours, destroying the vitamins. Findlay recommended raw swede juice and cod liver oil; the outbreaks ceased.

Merz-Weigand,[7] Gonzelas[8] and certain Japanese writers report extensive outbreaks of hemeralopia due to dietary deficiencies. In addition to lack of fat soluble A the prolonged lack of green foodstuffs and other essentials together with the increased stimulation of sunlight on a depleted retina cause this hemeralopia to occur in the springtime.

Blegvad, Bloch, Mori, Pillat, Ross, Widmark, Wright and others have called attention to xerophthalmia and keratomalacia with damage to vision and their relation to the lack of fat soluble A.

Eye changes in diabetes considered due to rapid withdrawal of carbohydrates and salts may as likely be due to the lack of calcium and other elements in long continued faulty diets producing changes in the vessel walls and chemical changes in the blood. Ophthalmologists see hemorrhages in diabetic patients at other times than when rapid withdrawal of carbohydrates and salt is made.

Retinitis pigmentosa is hereditary in about 35 per cent of the cases. Trantas[9] and others suggest the feeding of liver in this disease. Trantas says that hemeralopia and keratomalacia not too far advanced will disappear in from two to seven days with liver feeding, while cod liver oil cures in from two to twelve weeks.

COMPOSITION OF THE BODY AND OF FOODSTUFFS

The elements found in the human body are oxygen, carbon, hydrogen, calcium, phosphorus, potassium, sulphur, sodium, chlorine, magnesium, iron, iodine, aluminum, arsenic, boron, cobalt, copper, fluorine, manganese, silicon and zinc. Constant disintegration and constant metabolism go on. The body eliminates daily more or less of each of the elements. To maintain life, health and high efficiency, the daily losses of these elements must be replaced. Replacement is through the foods ingested.

CONSTITUENTS OF FOODSTUFFS

Foodstuffs are divided into (1) proteins, (2) carbohydrates, (3) fats, (4) essential mineral elements and (5) vitamins. Proteins furnish but five of the elements making up the body; carbohydrates and fats only three of these five. The remaining seventeen must be derived from other ingredients of the food intake; namely, from the ash or mineral elements.

PROTEINS

Proteins replace soft tissue losses and occur in plant and animal life. Protein[10] is necessary to life. Sherman[11] states that more than fifty have been isolated. Proteins are complex, and corresponding tissues of different species are not identical substances. Certain radicals (amino-acids), tryptophan, lysine, cystine, hystidine, phenylalanine, proline, glycine and alanine are essential.

Quality of Protein.—Vegetable protein is not as good in quality as animal protein; both are needed for nutrition. Clayton[12] has shown that the protein of liver is of high value; kidney ranks next, then beef. Proteins of poor quality and lack of vitamin A will produce xerophthalmia more quickly than proteins of high quality.

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* Read before the Section on Ophthalmology at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 11, 1931.

* Owing to lack of space, this article has been abbreviated for The Journal. The complete article appears in the *Transactions* of the Section and in the author's reprints.

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[11] Sherman, H. C.: Chemistry of Food and Nutrition, ed. 3, 1927.

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Sources of Proteins.—Proteins are most abundant in cereals, beans, peas and nuts in vegetable life, and in meats, eggs, milk and fish in animal life. Nelson[13] says that vitamin B mitigates the ill effects of high protein diets.

How much protein is necessary? From 60 to 75 Gm. daily is usually sufficient; however, 100 Gm. may be necessary. The American diet has a fairly high protein content.

Wang, Hawks, Huddleston, Wood and Smith[14] and others found no relationship between the protein intake and the blood pressure.

Harvey and Howes[15] and others found that wounds heal more quickly under a high protein diet. This is of importance in eye surgery.

CARBOHYDRATES

Carbohydrates, much consumed, produce energy. McCance and Lawrence[16] have contributed data on the available carbohydrate content of different foods.

Carbohydrates[17] may be divided into two groups: 1. The monosaccharides, as dextrose (*d*-glucose), fructose and galactose, all form glycogen and can be absorbed directly into the blood. 2. Polysaccharides are colloids and include starch, hemicellulose, sucrose or sugar, pentosans and celluloses. They occur in grains, vegetable and some fruits. The pentosans and celluloses, little absorbed, are necessary for roughage and stimulating intestinal peristalsis.

Storage of Carbohydrate.—Carbohydrate is stored in the liver, muscles, bones and the skin. Curtailing of carbohydrate in skin diseases, especially eczema of the lids and blepharitis, is necessary.

The Consumption of Carbohydrates.—This has increased enormously. In 1924 the yearly consumption of sugar per capita was 110 pounds, or 547 calories a day. In 1926 a government survey of 80 per cent of the candy makers showed that they produced 1,083,399,754 pounds of candy.

Sugar does not contain a single vitamin or essential mineral salt. Continued consumption of large amounts of nonprotective substances, such as sugar, without a corresponding increase of protective substances may in time react on the body and on a delicate organ such as the eye.

Carbohydrate Requirements.—Voit estimated 500 Gm. a day. For the sedentary person this is too high; from a fourth to a third less is sufficient. Unless hard manual labor is done, the carbohydrate content does not need to be high.

FATS

Fats[17] represent the most concentrated form of energy foods; they are composed of radicals of fatty acids.

Storage of Fat.—Fats are stored in the body, and 0.2 per cent is found in the blood. The synthesis of fat from carbohydrate occurs and a small amount can be formed from protein. Many of the fatty acids combine with phosphorus and nitrogen, forming lipoids.

Sources of Fat.—Fats are obtained from animal and plant life. Fats and oils of the salmon, codfish and other salt water fish have a high iodine content. Eggs contain phospolipin. Butter and cream are important fats, since they contain the fat soluble vitamin A. The substituting of vegetable oils for butter is to be discouraged, since they contain little vitamin A and none of the other vitamins.

Fat Requirements.—About 1 Gm. of fat per kilogram of weight is needed.

MINERAL ELEMENTS

The mineral elements vary in amounts in different foods and also according to the locality from which the food originally came. The function of each mineral element is not yet known and much remains to be found out about their action. Many of them are potent substances playing a unique part in regulating physiologic processes.

VITAMINS

For years it has been known that a diet can be adequate in protein, carbohydrate, fat and inorganic salts but lacking in those substances known as vitamins, and that animals fed on such diets will die. If a small amount of fat soluble A and the water soluble B complex is added to the diet of such depleted animals, a remarkable change will be noted in two or three days. Little is known about the manner in which the vitamins act or about their actual chemical composition. Vitamins appear to be somewhat analogous to hormones.

Six vitamins so far have been demonstrated. These are known as vitamins A (antirachitic, antiophthalmic); B has two fractions, B$_1$ (sometimes called F, antineuritic) and B$_2$ (sometimes called G, antipellagric); C (antiscorbutic); D (antirachitic); E (antisterility). A, D, and E are fat soluble vitamins. The B complex and C are water soluble.

Vitamin A and Infection.—Vitamin A is of special interest to the ophthalmologist. It appears to have considerable to do with preventing infection. The term anti-infective is more appropriate than the earlier terms antirachitic and antiophthalmic. Attention was previously called to the relation of vitamin A to hemeralopia, xerophthalmia and keratomalacia.

Recent researches show that lack of fat soluble A is not the sole etiologic factor in xerophthalmia, but lack of vitamin B, good quality of protein, and possibly an unfavorable salt mixture in the diet also produce an ophthalmia similar to that caused by vitamin A deficiency.[28] However, it is now established that the process of metaplasia of the epithelium and changes in the ducts of the glands is not confined alone to the eye but is general in the respiratory, gastro-intestinal and genito-urinary tracts and is often accompanied by concretions. Cysts and infections of the meibomian glands as well as calcareous deposits in the palpebral conjunctiva are frequent in vitamin A deficiency. Accumulating clinical evidence appears to indicate that some obscure recurrent corneal ulcers, also corneal infiltrations of a dystrophy type, are associated with a vitamin A deficiency.

Pfannenstiel and Scharlau[29] made numerous series of experiments, inoculating rabbits with human pus containing in some experiments staphylococci and in others streptococci, pneumococci or tubercle bacilli. They found that giving vitamin A alone had little effect on staying the infectious process, but when they added B the infections were cut short and healing hastened somewhat on the addition of vitamin D. Vaccines had a more favorable effect when vitamins A and B were used. Mellanby and Green[30] gave vitamin A in puerperal septicemia, mostly of the streptococcus type, reducing the mortality to 28.6 per cent, while in a controlled group receiving no vitamin A the mortality was 92 per cent. This is of use to the ophthalmologist, since violent streptococcus infection of the eye occurs at times, with loss of sight.

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[13] Nelson, J.: J. Home Economics **18**: 383, 1926.

[14] Wang, C. C.; Hawks, J. E.; Huddleston, O. L.; Wood, A. A., and Smith, E. A.: J. Nutrition **3**: 89 (July) 1930.

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[16] McCance, R. A., and Lawrence, R. D.: Medical Research Council Special Report Series number 135, London, 1929.

[17] The reader is referred to books on physiologic and biologic chemistry for fuller descriptions of carbohydrates and fats.

[28] McCollum, E. V.; Simmonds, Nina; and Becker, J. E.: J. Biol. Chem. **64**: 161 (May) 1925.

[29] Pfannenstiel, W., and Scharlau, B.: München. med. Wchnschr. **77**: 619 (April 11) 1930.

The von Eulers[31] and others have isolated from vegetables a substance called carotene, which appears identical with vitamin A in its physiologic effects. This substance is found in carrots, in yellow corn and in the leaves of some plants. Its chemical reaction is not quite identical with vitamin A derived from animals, making it probable that vitamin A will eventually be shown to consist of two fractions, one found in animals and the other in plants.

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It appears that the subject is very complex. At least six of the mineral salts enumerated, several constituents of the protein group, a small amount of fat, a considerable amount of dextrose of the carbohydrate group, and small amounts of other important body constituents are found in the vitreous and aqueous of the eye.

It is evident that even a slight variation between the salts and constituents of the blood plasma and the tissues of the uvea—with its enormous capillary system, the latter acts as an osmotic system—and the colloidal vitreous on the other side will at once react on the metabolism and nutrition of the eye. It seems most probable that cataract and glaucoma are due to physicochemical upsets in the equilibrium between this osmotic system of the uvea and the vitreous and aqueous; the whole process is but a manifestation of a similar condition in other parts of the body and the primary cause arises from improper intake of essential elements and substances in the diet, which in time lessen the resistance to infection, give rise to intestinal toxins, place added burdens of elimination of excess salts and deleterious substances on the kidney, and induce changes in the permeability of the walls of the blood vessels.

The body must be furnished with an adequate supply of foods containing sufficient essential mineral salts, vitamins and proper proportions of acid and base forming substances to maintain the body neutrality and a good state of nutrition. How can this be done? I answer, by choosing a diet of milk and its products, eggs, green leafy vegetables, fruits and a small amount of meat and by restricting the intake of cereal grains and other carbohydrates.

Amount of Food.—What about calories, standardization of diets, highly concentrated foods and the many widely advertised foods? How much food or how many calories depend on the occupation, the activity of the individual, the age, the weight, and the condition of the health. Diet is largely an individual problem. The undue attention given to the calories and excessive standardization are to be deplored. The biologic values of the foods used and the individual requirements are of far more importance. Most of the foods extolled in the advertising literature as having exceptional nutritive qualities do not measure up to the claims made. They are expensive and too often represent the propaganda of vested interests.

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People must get away from the regulation cereal, bread, meat, potato and rich pastry diet. Diets containing too much carbohydrate ferment easily in the intestine, producing irritating substances. Highly seasoned foods are to be avoided. Too high a fat diet, lacking in sufficient mineral salts, vitamins and a proper amount of carbohydrate, is unadvisable. In addition to beef, lamb and other meats, the diet should include liver, kidney, pancreas and brains.

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The consumption of carbohydrates is often two or three times the amount required for good nutrition. Excessive use of carbohydrates has been known to cause inflammatory diseases of the eye.

Excessive fat diets deficient in mineral elements and vitamins cause hyperplasia of the tissues.

The problem of food intake concerns itself with sufficient mineral elements and protective substances to maintain proper equilibrium of the body fluids and tissues.

3201 Clinton Avenue South.

Note.—Tables showing the various mineral constituents of foods; also the protein, carbohydrate and fat content of the edible portions and the vitamins were shown in lantern slides and will appear *in the transactions of the section*, as well as in the author's reprints.

ABSTRACT OF DISCUSSION

Dr. Albert N. Lemoine, Kansas City, Mo.: It is generally agreed that the thyroid secretion acts as a catalytic substance expediting chemical changes in the cells of the body, while the parathyroids control the calcium exchange in the body. With a deficiency of parathyroid with a normal calcium intake, one finds calcium in the stools, and a decrease in the calcium in the tissues; consequently a high calcium diet is of no avail if one has a parathyroid dysfunctioning. The anterior lobe of the pituitary controls growth and metamorphosis, while the posterior lobe assists in the control of the carbohydrate metabolism and the urinary output. The suprarenals stimulate the smooth muscles and act as a control of anaphylactic reactions. The discoloration of the skin in suprarenal deficiency greatly resembles that noted in some of the deficiency diseases. The pancreas secretes multiple ferments that control intestinal digestion of foods, especially the fats, and its internal secretions control the metabolism of dextrose. With these facts in mind, one can readily see that it is not possible to outline a diet that will meet the requirements of all patients from the mineral, the caloric or the vitamin standpoint. But one must understand the needs and deficiencies of each individual patient to prescribe the proper diet intelligently. However, it is quite true that a diet containing the proper proportions of minerals, carbohydrates, fats and pretein with a good proportion of all the vitamins will certainly act favorably in most eye diseases. I agree with the author that most patients with vernal catarrh have a low blood calcium, as that has been my experience with these patients, but in some severe cases I have had a normal blood calcium. I do not believe that the low blood calcium is due to a deficient calcium intake; it probably is due to a hypoparathyroidism causing a faulty calcium exchange. It has been my experience that in most cases an increase of calcium intake did not increase the blood calcium, but, given with parathyroid, in most cases calcium did increase the calcium content of the blood.

Dr. I. S. Tassman, Philadelphia: I have maintained young rats on a diet deficient in vitamin A until the early ocular signs were noted, which cleared up by the addition of cod liver oil to the diet. This was in accord with the results obtained by others. More recently, vitamin A has been credited with growth promoting rather than ophthalmic properties and its absence from the diet of animals has been shown to produce lesions in many other organs with death of the animals before any marked ocular lesions developed. Green and Mellanby even found that vitamin A had an anti-infective property and claimed that at least it had a pronounced action in raising the resistance of the patient. As was noted in the paper, this should be of importance in the treatment of certain ocular conditions. From a practical standpoint, it is no doubt true that in many patients with ocular conditions there exists a deficiency or at least a partial deficiency of some of the essential food factors, particularly vitamin A. Pillat, who has studied many of these cases in northern China, has classified the ocular symptoms and signs resulting from vitamin A deficiency in a detailed form. Night blindness, loss of luster of the conjunctiva with bulbar injection, slight discharge and pigmentation of the conjunctiva, blepharitis, and hordeolum might all occur as early signs. Any one of a number of well known reasons may exist to cause an individual to maintain a uniform diet over a long period of time. Moreover, such a diet is apt to be deficient in the essentials. In the management of such cases as chronic blepharitis with crust formations on the lid margins, the ordinary subacute and chronic forms of conjunctivitis, recurrent hordeolum and chalazion, phlyctenular conjunctivitis and keratoconjunctivitis in children, episcleritis and simple ulcers of the cornea, a detailed inquiry into the diet of the patient to obtain exact knowledge of the foods included and those omitted will often reveal a real deficiency, which if corrected will do more to correct the ocular disturbances than the local treatment ordinarily used.

Dr. Laura A. Lane, Minneapolis: I feel that the iodine which one gives to patients in their food will activate a deficient thyroid, and Dr. Clark's work at the University of California seems to show conclusively that the green leafy vegetables help to fix the calcium. I hope that these patients will be treated as individuals, not in a wholesale fashion. It is an individual problem.

PNEUMOCOCCUS PSEUDOMEMBRANOUS PHARYNGITIS

REPORT OF FIVE CASES TREATED WITH ETHYLHYDROCUPREINE HYDROCHLORIDE *

deWAYNE G. RICHEY, M.D.
PITTSBURGH

In choosing to touch on such a shopworn theme as the microbic aspect of disease, one is enjoined by propriety to select for discussion significant facts regarding fundamental phases of the subject. Accordingly, this communication will endeavor: (1) to set forth the outstanding clinical features as observed in five persons suffering from acute pseudomembranous pharyngitis; (2) to emphasize that the pneumococcus as the apparent causal agent was revealed by appropriate bacteriologic examinations on carefully selected material, after repeated previous similar examinations on "routinely" taken swabs had failed to indicate this etiologic relationship; (3) to call attention to the therapeutic efficacy of ethylhydrocupreine hydrochloride, which was suggested by the bacteriologic observations, after all attempts to alter the course of the condition by innumerable local and general remedial agents proved futile; and, finally, to impress the fact that only by close cooperation between the clinician and the laboratory worker can even the simpler laboratory methods be made useful.

SUMMARY OF CLINICAL DATA

As there was no variation in many of the clinical manifestations throughout the entire group, the data will be considered collectively.

All of the five patients included in the series were adults; three were women, aged 20, 36 and 43, respectively; the two men were 24 and 80.

Save one, all were in good physical condition. The exception was a clergyman, aged 80, who had an advanced arteriosclerosis.

There was no suggestion of a determining epidemiologic factor, such as climate, season, social status, contact infection, or associated injury or illness. All cases were sporadic.

As indicated in the table, the onset of the attacks was usually rapid, being attended by a fever of from 100 to

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* From the Department of Otolaryngology, Mercy Hospital.

* Read before the Section on Laryngology, Otology and Rhinology at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 10, 1931.

102 F. and malaise. In case 4 the onset was sudden, with fever as high as 103 F., chills, myalgia and headache. The elderly man (case 5) showed few if any systemic constitutional manifestations. In fact, the systemic reaction to the infection showed greater variation than any other clinical feature. However, recurrent attacks were constant in the given person.

A remarkable constancy obtained in the local symptoms, which invariably were a severe sore throat, dysphagia and tender regional lymph nodes. The pain was described as being throbbing, burning or scalding. It was associated with a feeling of stiffness of the throat. These two symptoms led to a dysphagia that precluded ingestion of food and sometimes of liquids, for a week or more.

DESCRIPTION OF THE LESION

Site of Origin.—As shown in the table, in three cases the infection began in the pharynx and in two, on the floor of the mouth. Tonsillar tissue afforded the place of beginning in two of the three cases. However, in one instance a successful tonsillectomy did not prevent a recurrence (case 2) or an initial attack (case 4).

Analysis of Five Cases of Pneumococcus Pseudomembranous Pharyngitis Treated with Ethylhydrocupreine Hydrochloride *

Case	Sex	Age	Number of Former Attacks	Duration of Former Attacks, Days	Site of Orig n of Pseudomembrane, All Attacks	Anatomic Distribution of Pseudomembrane, All Attacks	Present Attack; Character of Onset	Number of Days Before Treatment with Ethylhydrocupreine	Number of Days of Treatment	Comment
1	♀	43	6	14-21	Left tonsil	Entire oropharynx	++	3	5	Pharynx cocainized before adm'nistration of ethylhydrocupreine; tonsillectomy and adenoidectomy one month later
2	♀	20	2	10-14	Nasopharynx	Postpharyngeal wall	++	2	4	Tonsillectomy and adenoidectomy one year ago after two similar attacks
3	♂	24	3	10-14	Right tonsil stump	Entire oropharynx	++	2	4	Incomplete tonsillectomy and adenoidectomy three years ago for similar condit.on; secondary tonsillectomy and adenoidectomy three months later
4	♀	36	. .	...	Floor of mouth	Entire cavum oris	+++	4	7	Associated gingivitis (Vincent's) requiring solution of potass.um arsenite; pat'ent died two years later of pneumonia; previous tonsillectomy and adenoidectomy
5	♂	80	?	....	Floor of mouth	Entire cavum oris	+	10	7	Patient was moribund at time and died of advanced arteriosclerosis two days after disappearance of pseudomembrane

* In th's table, ♂ denotes male; ♀, female; +, an insidious onset with no systemic reaction; ++, a rapid onset with moderately pronounced constitutional symptoms; +++, sudden onset with marked constitutional reaction.

Extent of Involvement.—Both cases originating on the floor of the mouth extended along the plica sublingualis to involve the pharynx. The lesions beginning in the pharynx did not spread anteriorly. In no instance was the tongue or the vestibule involved. Macroscopically, the exudate was very similar in appearance in all cases. The mature pseudomembrane was white, shiny, smooth and odorless. It was thick and surrounded by a narrow red areola. Being leathery, it was "diphtheritic." However, this term has been avoided purposely so as to obviate etiologic confusion. The membrane was fairly adherent, especially at the advancing border. As it separated, an extremely superficial base, composed of an eroded, frosted mucous membrane, stippled with petechiae, was seen. There was no destruction of tissue, and healing occurred rapidly, without scarring. It was perhaps less leathery, more friable, less adherent than the true *diphtheritic* pseudomembrane. However, this distinction was by no means sufficiently definite to be of convincing diagnostic value. Microscopically, the membrane was found to be a homogeneous mass of fibrinous coagulum almost devoid of cellular elements. It is important to note that the bacteria were never numerous and occurred in the deeper zone, especially at the advancing margin.

Laboratory Observations.—The leukocyte counts ranged from 6,600 to 9,500. Differential counts in two cases showed the normal ratio of the leukocytes.

Save for a trace of albumin in two cases, urinalysis gave negative results.

The complement fixation test for syphilis was negative in each case.

Bacteriologic Examination.—Unquestionably, the recognition of the pneumococcus as the predominant bacterium in each member of this series ultimately depended on appropriate bacteriologic examination of intelligently selected material. The previous failures of similar bacteriologic methods to place this microorganism in the light of at least a possible causal rôle on materials from the same persons neither condemns the method nor incriminates the examiner. It does, however, emphasize the necessity for a close cooperation between the clinician and the bacteriologist and, consequently, places a responsibility on the practitioner to see that representative material is procured for examination.

Only by obtaining a piece of the fibrinous exudate from the advancing border can one expect to gain accurate information as to the bacterial flora of the lesions. Without exception, loose or entirely separated pieces of membrane yielded a host of habitués among the oral flora, which had long since overgrown the pneumococcus.

The methods employed in this investigation represent a standard procedure with us and involve ordinary forms of bacteriologic technic; namely, (1) direct smears of crushed exudate stained by Gram's method, by Loeffler's alkaline methylene blue (methylthionine chloride U. S. P.) and by dilute carbolfuchsin (1 : 10); and (2) cultures on Loeffler's serum medium and on plain serum broth, with subsequent isolation and identification of the various parasitic types.

The pneumococcus is a lanceolate, gram-positiv encapsulated diplococcus, forming a round umbilica greenish colony on blood agar; it is bile soluble and usually ferments inulin.

Briefly, then, the pneumococcus was recognized as the predominating organism in each of the five cases, when newly formed exudate was examined. It occurred in pure culture on two occasions, and in symbiosis with a few well known members of the oral flora in the other three instances. Of the isolated strains of pneumococcus, three were subjected to serologic tests, and all fell in the large miscellaneous group commonly called type IV. No virulence determinations were made.

Among those instances that yielded other organisms in addition to pneumococci, one deserves comment. A large number of the fusospirillary forms commonly associated with Vincent's angina occurred, with a hemolytic streptococcus (Streptococcus pyogenes). Clinically, there was an extensive gingivitis along the alveolar ridge of the lower jaw (case 4).

TREATMENT

It was the recognition of the pneumococcus in practically pure culture in the first case that suggested the use of ethylhydrocupreine (optochin) hydrochloride, an alkaloid related to quinine and of high pneumococcidal properties. To the lesions of the first patient, an introspective woman, was applied by cotton applicators a fresh aqueous solution (1 per cent) of ethylhydrocupreine hydrochloride. So painful was the procedure that the treatment was repeated only once a day after preliminary cocainization. In the remaining cases a 2 per cent solution was used, sometimes as often as every two hours, following partial disintegration of the pseudomembrane by fresh hydrogen peroxide. None of these patients complained of pain.

Reference to the table will give some idea that the gratifying therapeutic response was not only in shortening the course of the infection but more particularly in the almost immediate alleviation of pain, salivation and dysphagia. In the two cases that required a week for the exudate to disappear, one had a marked gingivitis which required the administration of solution of potassium arsenite (Fowler's solution) and later the extraction of the lower teeth. In the other patient, a moribund old man, the exudate disappeared entirely in a week, and two days later he died in his sleep. No toxic manifestations appeared in any patient.

LITERATURE

The relevant literature has been surveyed with reasonable diligence. No attempt has been made to expiscate articles consigned to oblivion. The number of references found was relatively few. In most of the older cases, convincing evidence as to their true pneumococcic pseudomembranous nature is lacking. Most of the reports appear in the French literature: Reh[1] reports nine cases; Riser and Bert,[2] two cases (all in children). Reich and Schomerus,[3] in Germany, mention ten instances involving the pharynx. Heindl,[4] in describing a personal case, mentions two reported by Paltauf and six by Koritschoner. A good instance appears in a report by Ramos.[5] Many of these cases present bacteriologic and clinical conditions similar to my cases.

A good many instances of a pneumococcic pseudomembranous lesion in the nose and trachea have been reported. More, however, appear to have been due to streptococci. Of course, the vast majority are caused by Bacillus diphtheriae. Deep, ulcerative lesions were noted by Semon[6] and by Foster.[7]

Since Morgenroth and his co-workers[8] in 1911 isolated ethylhydrocupreine, it has been used in the treatment of various types of pneumococcic infections, notably in conjunctivitis, empyema, meningitis and lobar pneumonia. The best results have been seen in cases presenting conjunctivitis and empyema.

In most of the cases in the literature any efforts at specific therapy have been confined to vaccines and serums. I have been unable to find a formal account of the treatment of acute pneumococcic pseudomembranous pharyngitis by ethylhydrocupreine.

SUMMARY AND CONCLUSIONS

1. Pertinent bacteriologic and clinical data from five adult persons suffering from an acute pseudomembranous pharyngitis, beginning in two cases as a stomatitis, are presented.

2. In all the cases a typical pneumococcus was found, by standard bacteriologic methods of examination of the fibrinous exudate, to be the dominant micro-organism.

3. Clinically the local symptoms are constant and consist of a severe sore throat, salivation, dysphagia and cervical adenitis; the systemic reaction varies considerably.

4. The characteristic lesion is uniformly found: a white, fairly tough, fairly adherent, odorless sheet of fibrin on a superficially eroded oropharyngeal mucosa. It is very similar to the *diphtheritic* pseudomembrane caused by the Klebs-Loeffler bacillus. Diagnosis should be made by bacteriologic examination.

5. The condition does not endanger life as a rule; attacks tend to recur.

6. The lesion resists most types of local and general therapy.

7. Striking results were obtained by the topical application of ethylhydrocupreine hydrochloride.

8. The cardinal importance of a close cooperation between the clinician and the bacteriologist is stressed.

515 Grant Street.

ABSTRACT OF DISCUSSION

Dr. Walter Roberts, Philadelphia: In going over a copy of Dr. Richey's paper, which he sent me a few days ago, I was impressed with the fact that it contained much that was new to me. I am willing to admit that I had not realized the important part that the pneumococcus sometimes plays in throat infections. Those of us who have had many years' experience in the treatment of pseudomembranous pharyngitis and have felt that we were fairly competent in the diagnosis and treatment of the various conditions which we encountered may now feel a little chagrined that we failed to recognize this pneumococcic type of the disease. The diphtheritic, the streptococcic and the Vincent's angina membranes all have their appropriate treatments and usually are satisfactorily dealt with, but occasionally we have not achieved the rapid results that we expected, and now in looking back I should not be surprised if the pneumococcus was to blame. It is very possible that they were mixed infections and our treatments had no effect on the pneumococcic side of the trouble. In these days when our colleagues in the laboratory are ever ready to help in our diagnosis and treatment there is no excuse for our failing to recognize these pneumococcic, pseudomembranous pharyngitis cases and

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1. Reh, T.: Arch. de méd. d. enf. **20**: 131 (March) 1917.
2. Riser and Bert: Arch. de méd. d. enf. **26**: 670 (Nov.) 1923.
3. Reich and Schomerus: Centralbl. f. Bakteriol., Ref. **44**: 650, 1909.
4. Heindl, A.: Wien. klin. Wchnschr. **33**: 250 (March 18) 1920.
5. Ramos, A. A.: Pneumococcus Tonsillitis, Arch. espan. de pediat. **4**: 273 (May) 1920; abstr. J. A. M. A. **75**: 844 (Sept. 18) 1920.
6. Semon: Brit. M. J. **1**: 1525 (June 26) 1909.
7. Foster, B.: M. J. Australia **2**: 262 (Sept. 27) 1919.
8. Morgenroth: Berl. klin. Wchnschr. **48**: 1560, 1927, 1911.

to give them the appropriate care. We must not forget that a diagnosis of the condition under discussion can be made only by a careful bacteriologic study. In the future, when I meet a pseudomembranous pharyngitis that does not respond to the usual treatments, I shall see to it that a careful bacteriologic study is made, and if there is a predominance of pneumococci, I shall apply 1 per cent solution of ethylhydrocupreine.

Dr. Horace James Williams, Philadelphia: Little has been written in either the English or the American literature concerning pneumococcus pseudomembranous pharyngitis. In 1908, Henry Albert of Iowa City reported his observations of pseudomembranous inflammations of the pharynx caused by staphylococcus, streptococcus, Vincent's organism, and Micrococcus catarrhalis. In his observation the streptococcus was most often the offending organism. Vedal reported a similar epidemic of pneumococcic angina in which five cases occurred, with three deaths. In 1909, John Elliot reported in the *British Medical Journal* an epidemic of pneumococcic pharyngitis occurring at the same time as an epidemic of pneumonia. Most of his cases showed the pneumococcus present in the pharynx but without a membrane. Sir Felix Simon described several cases of ulcerative pharyngitis with perforation of the palate and brought considerable evidence to show that they were pneumococcic in origin. I have seen but one case, and this might be questioned. In a boy, aged 10 years, an acute pharyngitis developed, with a temperature ranging from 100 to 101 F., and a marked angina. The pharynx was covered with a yellowish exudate, and at first the condition was thought to be diphtheria. The culture revealed the presence of pneumococci. The patient was treated with 1 per cent solution of ethylhydrocupreine after the membrane had been removed. By the eighth day the membrane had disappeared and the patient's symptoms rapidly subsided.

Dr. de Wayne G. Richey, Pittsburgh: While I cannot bring myself to accept in full measure their generous remarks, Drs. Roberts and Williams have encouraged me to continue that which was previously foreshortened by time. The poikilonymous title "Pneumococcus Pseudomembranous Pharyngitis" was designed to connote the chief sources of its subject's data, bacteriologic, pathologic and clinical; to imply a probable pneumococcic origin for these five cases, an inference consistent with the evidence, but not necessarily to pose the pneumococcus as the specific etiologic agent—an assumption neither justified by the facts nor essential to the propositions of this discussion. Moreover, "pseudomembranous pharyngitis" is not recognized as a pathologic process or a clinical entity peculiar to pneumococci. Indeed, "pseudomembranous" is employed purely in an anatomic sense to indicate a membrane-like expanse of solidified fibrinous exudate, with or without subjacent necrosis. It embraces, therefore, terms like "croupous" and "diphtheritic," and symbolizes the defensive and protective response of oropharyngeal mucosae to irritants of degree rather than of kind, particularly bacteria and notably Corynebacterium diphtheriae, Streptococcus hemolyticus and Pneumococcus. Conceding the supremacy of the Klebs-Loeffler bacillus, one wonders why pneumococci—arch elaborators of fibrin on superficially denuded mucosal epitheliums—have been encountered less frequently than the common pyogenic hemolytic streptococci. One wonders, too, that most of the recorded attempts at specific treatment have been confined to serum therapy, because, by virtue of acuteness, superficiality, ready regional accessibility and low absorbability, this condition meets virtually all the essential requirements for successfull chemotherapy. Even so, and admitting ethylhydrocupreine's high pneumococcidal properties in vitro, one encounters two formidable barriers to local chemotherapeutic idealism: the relatively slow action of ethylhydrocupreine in vivo and the low penetrability of aqueous solutions. In practice, these hazards can be circumvented best by frequent topical applications (as often as every hour, if necessary) and by disintegration of the false membrane by fresh hydrogen dioxide. Under no circumstances should the pseudomembrane be removed forcibly, since it provides a scaffolding conducive to scarless healing. But, above all, it must be remembered that rational specific therapy depends on correct bacteriologic diagnosis, which in turn depends on well devised examinations on astutely chosen materials.

Clinical Notes, Suggestions and New Instruments

HENDERSON IMPROVED STAIN FOR STIPPLE CELLS

W. E. Deuel, M.D., Pennsgrove, N. J.

To those interested in blood work in connection with the lead industry, I wish to suggest the use of a stain for stipple cells that has proved superior to all others that have been used in an industrial hospital with which I am associated.

This stain was developed by Carl W. Henderson, laboratory technician, du Pont Dye Works Hospital. He examines an average of ninety smears a week and with the usual method of staining too much time was required. With the Henderson method only about one-half minute is required, as compared to five minutes with other stains.

There is no precipitate, making it easier, therefore, to distinguish the basophilic granular cells. The contrast is greater and there is only one step in staining the smear.

Methylene blue	3.75 Gm.
Gentian violet	1.00 Gm.
Add:	
Sodium hydroxide, 10 per cent	5 minims
Methyl alcohol, q. s. ad	250 cc.

Blood smears do not need to be fixed. A Coplin jar is used. Smears are placed in the Coplin staining jar of solution for about one minute, washed with dilute ammonia water, and then rinsed with distilled water. Acetone free alcohol is used.

Dilute ammonia solution:	
Stronger ammonia	5 cc.
Distilled water	3,000 cc.

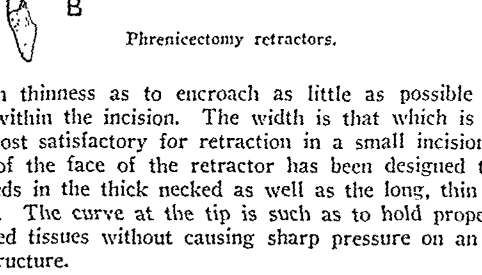
34 Ziegler Tract.

NEW PHRENICECTOMY RETRACTORS

W. E. Delaney, Jr., M.D., Williamsport, Pa.

Proper retraction in phrenicectomies is the most important factor in the skilful and speedy completion of the operation through an incision of minimum length. Retractors in present use have been found unsatisfactory because of their width, thickness, narrowness, shortness or other disproportion.

In order to secure retractors to meet all needs in the operation, I have designed the instruments[1] illustrated here and have found them entirely satisfactory. The instruments are made of such thinness as to encroach as little as possible on the space within the incision. The width is that which is considered most satisfactory for retraction in a small incision. The depth of the face of the retractor has been designed to meet the needs in the thick necked as well as the long, thin necked patient. The curve at the tip is such as to hold properly the retracted tissues without causing sharp pressure on an important structure.



Phrenicectomy retractors.

In order to remove the assistant's hands from the operative field and to make it comfortable for the assistant as he reaches across the patient, the handles of the retractors have been constructed with differing curves for lateral and medial retraction. Retractor *A*, with the concave handle when the instrument is in position, is for retraction laterally on whichever side the incision is made. Retractor *B*, with the convex handle, is for medial retraction. The two retractors are used simultaneously, and the pull of each is enough to offset the pull of the other. The use of these retractors permits exposure of the phrenic nerve through the smallest possible incision and should be helpful to surgeons performing this operation.

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[1] These instruments are manufactured by G. P. Pilling & Son Company, Philadelphia.

416 Pine Street.

Council on Physical Therapy

The Council on Physical Therapy of the American Medical Association has authorized publication of the following article.
H. A. Carter, Secretary.

COLON IRRIGATIONS

THEIR ADMINISTRATION, THERAPEUTIC APPLICATION AND DANGERS

WALTER A. BASTEDO, M.D., Sc.D.
NEW YORK

The colon irrigation has come into extensive use for the removal from the bowel of abnormal mucus, toxic products and bacteria; therefore, as part of our therapeutic armamentarium, it deserves consideration. Between enemas and irrigations there would seem to be no sharp dividing line, yet they are distinct in their purposes. In medicine, the term irrigation conveys the idea of washing; therefore, while the ordinary enema is given with the purpose of inducing defecation, the irrigation is administered, not to induce defecation, but to wash out material situated above the defecation area and to lavage the wall of the bowel as high as the water can be made to reach. To accomplish its purpose an irrigation requires (1) that the fecal mass in the lower colon shall have been expelled and (2) that the liquid shall be passed into the colon so gently that it does not arouse the defecation reflexes. Otherwise it is not a properly given irrigation.

METHODS OF IRRIGATION

There are two primary methods in common use, the one tube and the two tube. With either method the intelligence, skill and experience of the nurse count for much in obtaining results.

The One Tube Method.—This involves filling the colon to capacity through a single tube and then allowing the liquid to run out through the same tube, the process being repeated a number of times. The tube most favored is velvet-eyed with closed end, number 34 French, and is inserted about 6 inches. As demonstrated by roentgenograms, when the ordinary colon tube is passed beyond 6 or 8 inches, it coils up in the upper rectum and, no matter how much of the tube is inserted, it rarely enters the descending colon. There is therefore no benefit to be derived from passing a long colon tube 18 or 20 inches to form such a coil in the rectal ampulla.

Tubes of large caliber, number 38 to 50 French, are also sold for irrigation purposes. Their advocates claim that after the sigmoid flexure is washed out the end of the tube may be pushed on to the splenic flexure for cleansing the descending colon, then to the midtransverse colon or hepatic flexure for cleansing the transverse colon and then to the cecum for lavage of the cecum and ascending colon. One of these advocates asserts that "a stiff colon tube in the bowel will render it powerless to coil or form loops." He shows several pictures in which the end of the tube is in the transverse colon or hepatic flexure and one in which, *after the insertion of 69 inches of tube*, the end is practically in the cecum.

The passage of such a heavy stiff piece of hose for more than a few inches I consider a dangerous procedure. Moreover, the high insertion is unnecessary, for the universal use of the opaque enema in roentgen work has demonstrated beyond question that with a tube inserted 3 or 4 inches into the rectum and a pressure level of 2 feet, the liquid will reach the cecum in from two to five minutes. There is no specific difference, therefore, between a "low irrigation" and a "high irrigation," and such misleading terms should be abolished. In reporting his roentgen studies with enemas of a mucilaginous suspension of barium followed by irrigation with the large single tube, Fineman remarks: "In a few cases with the tube in the sigmoid and even in the transverse colon or cecum, a great amount of the barium remained in the colon after the irrigation . . . In some cases there was better emptying from a 4 inch tube than from one passed into the cecum . . . As yet final deductions concerning the necessity or advantage of introducing the tube far into the colon are not warranted."

The Two Tube Method.—This employs separate inflow and outflow tubes and is the method that I prefer. It seems to me more successful in promoting relaxation and avoiding over-distention. For the inflow I use a soft rubber velvet-eyed catheter, number 20 to 24 French, inserted from 5 to 6 inches, and for the outflow, a velvet-eyed closed-end rectal tube (or stomach tube), number 30 or 32 French, inserted from 3 to 4 inches. The patient is placed on an ordinary mattress couch, rather than on some elaborately built and patented table. The details of the method are as follows:

DIRECTIONS FOR THE NURSE

1. If the patient has not defecated, empty the bowels with a plain water enema and wait fifteen minutes for the defecation reflexes to quiet down.
2. For the first gallon have the patient lie on the left side with the knees drawn up. After that have the patient lie on the back.
3. Hang the reservoir so that its midlevel is not more than 2 feet above the rectum.
4. Having freely lubricated the tubes with white petrolatum, have the patient bear down as at stool and insert the inlet tube 5 or 6 inches, allowing the water to flow during its insertion. Then insert the outlet tube 3 or 4 inches.
5. Use plain water at or just above body temperature, and let it run in slowly to avoid arousing the defecation reflexes.
6. If the outlet tube becomes plugged, inject a little water through it with a hand bulb. If this does not clear it, withdraw it without disturbing the inlet tube, clean it and reinsert.
7. Terminate the irrigation when convinced that the colon is clean or when you think the treatment has been sufficiently prolonged. We expect an irrigation to consume from 6 to 10 gallons and to take nearly an hour.
8. After the irrigation, have the patient empty the bowels into the toilet. Examine this return before the toilet is flushed.
9. Report particularly on the various odors and on the amount and character of the mucus, feces and recognizable food particles in each gallon of the returns.

THE LIQUID EMPLOYED

Because of the large amount of liquid introduced, I use plain water. Sodium chloride solution has not shown any advantage and, in some cases, makes the patient thirsty and unduly activates the bladder. Sodium bicarbonate solution is frequently employed as a solvent for mucus. But it does not dissolve the thick heavy masses of mucus found in mucous colitis; it unduly activates the kidneys; it may overalkalize the bowel and the patient; and, not infrequently, it generates undue amounts of gas. I have had a number of complaints of colic from sodium bicarbonate, while in the same patients plain water did not arouse colic. With roentgenograms, Fineman showed that plain water is more cleansing than solutions of sodium chloride or sodium bicarbonate. I do not suggest that saline of sodium bicarbonate solutions should never be used, but as a routine I prefer plain water. Sodium carbonate (washing soda) dissolves mucus better than does sodium bicarbonate and generates less gas, but it is a much stronger alkali and it has caustic properties. In my opinion it should not be introduced into the colon.

I do not ordinarily employ astringents or antiseptics. The strongest antiseptics permissible in the bowel do not kill the bacteria and are prone to be injurious to the wall of the colon. The Dragstedts and Nisbet at the Mayo Clinic showed the impossibility of sterilizing the intestine by ordinary antiseptics. In tied off intestinal loops they placed 70 per cent alcohol, ether, a 2 per cent compound solution of cresol, 5 per cent silver nitrate, a saturated solution of zinc chloride, 5 per cent phenol, 10 per cent thymol in alcohol, a saturated solution of phenyl salicylate, a saturated solution of quinine sulphate, surgical solution of chlorinated soda, a solution of mercuric chloride, and the solids, camphor, menthol, naphthalene and betanaphthol. In all these cases they failed to obtain sterilization. How, then, could an antiseptic effect be expected from the weak solutions permissible for irrigation purposes? The bowel is freed from bacteria much more by washing out its contents and by the removal of masses of mucus which cling tightly to the mucous membrane and harbor innumerable bacteria between this and the mucous sheet.

I use from 6 to 10 gallons of fluid at a temperature of about 100 F. Weitz and Vallers find that both heat and cold lower the tonus of the colon but that the heat effect is stronger and more lasting. Possibly a hotter fluid might be of benefit when the colon is irritable.

FURTHER CONSIDERATIONS

Irrigations are not given to move the bowels but rather to reach the regions beyond the defecation area of the left colon, the regions not cleaned out by defecation. Just as a stomach is lavaged with water until it is clean, so is an attempt made to lavage the colon until it is clean. True, one can fill the colon with 2 quarts of water, have it pass to the cecum in two or three minutes, as shown by roentgenograms, and have it reexpelled. But this does not suffice. In mucous colitis the thick tenacious mucus may take a lot of soaking before it can be liberated from the mucous membrane to which it clings so tightly. At autopsy I have found it a difficult matter to remove this mucus even with forceps and under a strong stream of water. Moreover, the site of the putrefaction or infection, as shown by Herter and others, is not infrequently the terminal foot or two of the small intestine. After several gallons had been used in washing the colon, with the patient quite relaxed, and even after an enema had been given, it has been my experience in numerous cases suddenly to obtain rotten putrefying material, as if the ileocolic sphincter had just opened and let down bad ileal contents.

When an irrigation is unsuccessful in obtaining the mucus, a brisk cathartic given the same night may result in the passage of large quantities of mucus, apparently softened by the water of the irrigation, and sometimes in the passage of foul putrefactive stuff, presumably from the small intestine and completely missed by the 6 or 8 gallons of water employed in the irrigation. When the mucus proves regularly to be loosened with difficulty, I give a small dose of phenolphthalein the night before or a small dose of salts the morning of the irrigation. Cleaning diseased bowels is not an easy task, and Alvarez and Freedlander have shown that even in the normal bowel sidetracking is a common trick. They gave normal persons small beads with their food and found that many days and even weeks elapsed before the last beads were passed in the stools. Some of the subjects with apparently normal movements took a week to pass as much as 70 per cent of the beads. One person whose bowels were constipated did not pass the last of the beads until the fortieth day.

It must be evident that if the whole colon is irrigated the water cannot return clear, and that a "clear return," as so frequently reported by the unspecialized nurse, means that the water did not get up. In many of our hospitals only twenty minutes are allowed to prepare for and give an irrigation; it is often given between 7 and 8 o'clock in the morning before the bowels have had a chance to move; there is no effort to obtain a movement of the bowels in advance of the irrigation; and the bag is placed 4 or 5 feet high so that the water can be rushed in. This is not a proper irrigation.

For ordinary mucous colitis, putrefaction or focal infection cases I employ the irrigation two or three times a week at first, then every five days, then once a week. I use irrigations oftener only in acute cases of other types. The introduction of water or other liquids into the bowel, whether as an enema or irrigation, is an abnormal procedure, and cleaning out the whole colon too frequently may harmfully interrupt its normal functions. The colon receives a large amount of liquid material from the small intestine all day long, and expels a comparatively small amount of concentrated material only once or twice a day. Its chief physiologic functions are therefore retardation and absorption, and it secretes mucus. It is not a sewer and when the fecal contents are in the state of sewage an evacuation or irrigation is indicated. So far as mucus is concerned, an irrigation is indicated only for the abnormal thick membranes and strings of mucous colitis. The mere return of mucus, as reported by a nurse, does not of itself justify the repetition of the procedure. Indeed, overirrigation, like overcatharsis, may result in the production of much mucus. This is not, however, of the mucous colitis type. If given daily, irrigations remove an undue amount of nutritive material and interfere with the normal regulation of the bowels. Moreover, an irrigation may be a weakening and disturbing process for the patient. Therefore, irrigations are justified only by the value of their results and should be prescribed with the foregoing facts in mind.

In some circles there has been much criticism of the use of irrigations in mucous colitis, but I have been able to relieve many patients who have been denied the advantage of irrigations by physicians opposed to the procedure. When one sees the dirty gray, brown or blackish sheets, strings and rolled up wormlike masses of tough mucus with a rotten or dead-fish odor that are obtained by colon irrigations, one does not w [illegible] that these patients feel ill and that they obtain relief and show improvement as the result of the irrigation. In Europe, where the usual colon lavage consists of 2 liters of water or mineral water, administered once or twice a day, I have found a holy horror of the use of the large amounts of water employed in our irrigations. The doctors speak of them as "massive douches." But invariably when I have been able to induce a visiting European physician to watch one of my nurses give an irrigation and have studied the irrigation returns with him, he has been impressed with its value and in some instances has bought several sets of tubes for use at home.

Repeatedly when stool examinations have failed to suggest putrefaction or to show abnormal mucus, an irrigation has brought down putrid material or the characteristic colitis mucus. Thus a test irrigation is a diagnostic procedure. The microscope will also reveal the presence or absence of numerous leukocytes in the mucus, thus distinguishing the more inflammatory from the less inflammatory types. Irrigations are of value also in revealing departures from the prescribed diet.

Those who need irrigations must be distinguished from those who do not need them, for there are many persons, especially those with mucous colitis, who acquire the irrigation habit and resort to this measure whenever they become conscious of the lower part of the abdomen or feel what they describe as "toxic." They are encouraged in this attitude by the commercialized irrigation specialists, who are unduly numerous but do a thriving business. But this self-medication is just as reprehensible as any other self-medication and should be combated by the physician.

The method is not to be condemned because it is overused by exploiting nurses; but physicians are to be condemned who order frequent irrigations without specifications, who do not examine the character of the return, and who base their subsequent treatment of the patient on the usual perfunctory report of a nurse. It requires an intelligent, experienced and interested operator to observe properly and to assess correctly the character of the mucus and fecal matter and the significance of the sundry odors that are obtained at different times during the irrigation.

UNTOWARD REACTIONS

The untoward reactions are nausea with a feeling of pressure in the epigastric region; undue abdominal distention; cramps; anal irritation; and, following the irrigation, a feeling of weakness. The nausea is practically never sufficient to demand discontinuance of the irrigation. The distention is not uncommon with inexperienced nurses using the single tube method. Unless the bowel is filled with gas it can readily be governed by the operator. Cramps or colic may be associated with too rapid administration, the loosening of mucus, an undue amount of gas, the taking of a cathartic the night before, or an irritable colon. In the last case a painless and successful irrigation may usually be accomplished by the administration half an hour or an hour before the irrigation of a capsule containing codeine, 0.03 Gm. (½ grain), and atropine sulphate, 0.6 mg. (¹⁄₁₀₀ grain). In conditions of anal irritation, the irrigation may be preceded by a suppository containing ethyl aminobenzoate, 0.3 Gm. (5 grains), and the application of a 5 per cent ointment of ethyl aminobenzoate. In some cases the single tube is less irritating to the anal region than the double tube. The postirrigation weakness is minimized by a period of lying down with relaxation. However, most patients feel better after the irrigation than before.

MISHAPS AND DANGERS

The most common mishap reported is bleeding from the rectum. In examining these patients I have found that the blood usually comes from hemorrhoids, though occasionally from a fissure or ulcer. In two instances I have found a torn rectal valve and in several others an injured or severed polypus. On three occasions nurses have found in the return a "piece of flesh," which proved to be a detached polypus. These severe traumas resulted from the use of too stiff a tube or a tube with a sharp-edged terminal opening. Dr. J. M. Lynch tells me of perforation of a sigmoid diverticulum by the irrigation tube. In his advocacy of the large tube, Snyder states that "unless the greatest of care and skill is exercised during this manipulation an abrasion or perforation of the colon wall may readily result," though he fails to mention specific instances of either.

The charge that colitis or permanent dilatation of the bowel may result from irrigations has not been substantiated. In many roentgen studies Snyder did not find dilatation of the bowel in any patient, though many had been subjected to large numbers of irrigations at close intervals. In a study of the effects of enemas, Soper found the rectal tone improved.[1]

SUMMARY

I have been considering the methods of administration, the therapeutic application, the abuse, and the dangers of repeated or routine colon irrigations. These are employed in chronic states of the bowel, such as are encountered in mucous colitis, intestinal putrefactive toxemia and in cases in which a focus of infection is believed to reside in the bowel, as in certain cases of rheumatism, neuritis, secondary anemia and sundry run-down conditions. There are many other acute and chronic conditions in which an irrigation may be found useful, but of these I have omitted discussion.

In recapitulation: 1. A colon irrigation is a process of lavage to be distinguished from an enema. 2. It is given to dilute and wash out the contents of the bowel above the normal defecation area, to soften and loosen abnormal mucus and to lavage the colon wall. 3. It leaves the colon more or less empty and contracted and thus exerts a beneficial effect on its blood supply and its tone. 4. It should be preceded by defecation and should be administered very slowly and without much pressure. 5. The one tube and two tube methods are employed, the tubes being inserted not more than 6 inches. 6. The high insertion of a large rather stiff tube is dangerous and without proved advantage. 7. The dangers of the stiffer tube are perforation, injury to a polypus, tearing of a rectal valve, and abrasion of the wall. 8. The charges that irrigations do harm by removing normal mucus, by lowering the tone of the bowel and by producing colitis are without foundation. 9. An irrigation is frequently a failure in the hospital ward and in the hands of the unspecialized nurse.

I trust that my warnings against its improper administration, its dangers and its abuse will not discourage physicians in the proper utilization of this valuable therapeutic measure.

33 East Sixty-Eighth Street.

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[1] The following references are suggested for further reading:
Alvarez, W. C., and Freedlander, B. L.: Rate of Progress of Food Residue Through the Bowel, J. A. M. A. **83**: 576 (Aug. 23) 1924.
Fineman, S., and Snyder, R. G.: Clinical and Roentgenologic Study of High Colonic Irrigation as Used in Therapy of Subacute and Chronic Arthritis, Am. J. Roentgenol. **17**: 27-43 (Jan.) 1927.
Dragstedt, C. A., and Nisbet, O. M.: Intestinal Antiseptics, J. Lab. & Clin. Med. **8**: 190-193 (Dec.) 1922.

Committee on Foods

The following products have been accepted by the Committee on Foods of the American Medical Association following any necessary corrections of the labels and advertising to conform to the Rules and Regulations. These products are approved for advertising in the publications of the American Medical Association, and for general promulgation to the public. They will be included in the Book of Accepted Foods to be published by the American Medical Association.

Raymond Hertwig, Secretary.

HYGEIA PURE STRAINED CARROTS

Contains Vitamin D

Added Irradiated Ergosterol (Mildly seasoned with salt)

Manufacturer.—Snider Packing Corporation, Rochester, N. Y.

Distributor.—Hygeia Nursing Bottle Company, Buffalo, N. Y.

Description.—Strained carrots retaining in large measure the mineral and vitamin content of the raw carrots used; with added vitamin D (irradiated ergosterol), 60 D units per fluidounce; packed in jars. The D units are those defined by the Council on Pharmacy and Chemistry of the American Medical Association (New and Nonofficial Remedies, 1931, p. 414). One fluidounce is equivalent in vitamin D to the D content of one teaspoonful of cod liver oil. Mildly seasoned with salt.

Manufacture.—The carrots are purchased locally and graded for size and the larger carrots used. The carrots are steamed to facilitate the removal of the skins and then mechanically peeled. The peeled carrots are inspected, further trimmed if necessary, diced, filled into No. 10 cans and a hot brine solution (87 C.) is added. The cans are sealed and processed for forty-five minutes at 115 C.

The canned carrots in the preparation for puréeing are treated essentially as described for Strained Peas. The liquid content of the can is strained off and not used for puréeing, which eliminates most of the salt. The processing is that described for the Strained Peas. Irradiated ergosterol is incorporated in the product, as described for Strained Peas.

Analysis (submitted by manufacturer).—

Specific gravity 20 C./20 C	1.03
	per cent
Moisture	93.9
Total solids	6.1
Ash	0.7
Fat (ether extract)	0.2
Protein (N × 6.25)	0.6
Reducing sugars after inversion as dextrose	2.6
Starch (acid hydrolysis method)	0.4
Crude fiber	0.6
Carbohydrates other than crude fiber (by difference)	4.0
Calcium (Ca)	0.03
Iron (Fe)	0 001
Phosphorus (P)	0.01

Calorics.—0.2 per gram; 6 per ounce.

Vitamins and Claims of Manufacturer.—See these sections for Strained Peas (The Journal, Feb. 13, 1932, p. 555).

U-COP-CO GELATINES

(Flaked and Granulated)

Manufacturer.—United Chemical and Organic Products Company, Chicago.

Description.—Granular and flake plain unsweetened gelatin; graded on the basis of jelly strength for special uses.

Manufacture.—U-Cop-Co Gelatine is made entirely from porkskin trimmings and "osseine" prepared from packer bone, from animals slaughtered solely for human consumption under the supervision of government inspectors. The fresh skins are frozen and stored under refrigeration until used. The stock drawn from refrigeration is washed and thawed in running water. Arsenic free hydrochloric acid is added to "plump" the stock and prepare it for cooking. The acid is neutralized and washed out. The stock is placed in cooking tanks and extracted by successive additions of hot distilled water. The separate gelatin solution extracts are clarified by passing through aluminum presses containing activated carbon and a diatomaceous "filter aid,"

For the granulated gelatin the clarified liquor is jelled on a rubber belt which passes through a refrigerated tunnel. The jelly is mechanically deposited on aluminum netting, dried by warm filtered air, and the dried gelatin is milled to a suitable granulation.

For the flake gelatin the clarified liquor flows on a large rotating wheel the surface of which is maintained by steam at a temperature above 100 C. The gelatin liquor is dried during one rotation of the wheel in approximately one minute. The dry film is scraped from the wheel by knives and the resulting flakes are broken up in a mill.

For certain special purposes, U-Cop-Co Gelatine is made from "osseine" prepared from edible packer bone. The bone is ground, the fat is extracted with light gasoline and the mineral matter with dilute hydrochloric acid. The organic residue or "osseine" is prepared for cooking by steeping in dilute lime water for three or four weeks. The lime is removed by the addition of dilute hydrochloric acid and washing in water. The subsequent washing, cooking and other treatments are substantially the same as described for the "porkskin" trimmings.

The different granular and flake gelatin grades intended for special uses are prepared by blending in definite proportions the gelatin from the several extractions, which respectively have different properties in jelly strength, viscosity, clearness, melting point, etc. These different properties adapt the various grades for particular uses.

All possible precautions are observed to prevent bacterial contamination of the gelatin. The equipment is thoroughly cleaned between runs. All pipe lines are either aluminum or nickel. Storage tanks for the gelatin liquor are glass lined. All operations are under laboratory control. Each lot of gelatin is separately tested.

Analysis (submitted by manufacturer).—

	per cent
Moisture	10.0
Ash (approximately 80 per cent sodium chloride)	1.2
Fat (ether extract)	0.0
Protein (N × 5.55)	88.5
Carbohydrates	0.0

Jelly strength of different grades (Method of the Edible Gelatin Manufacturers Research Society of America)......50 to 275 Bloom

	(parts per million)
Arsenic (As)	0
Copper (Cu)	less than 5
Zinc (Zn)	less than 5
Lead (Pb)	0
Sulphur dioxide (SO_2)	0
Added preservatives	none

Calorics.—3.5 per gram; 99 per ounce.

Micro-Organisms.—The manufacturer guarantees absence of Bacillus coli, liquefying and gas forming bacteria and pathogenic organisms.

Claims of Manufacturer.—U-Cop-Co Gelatines may be used in a wide variety of desserts, candies, salads, marshmallows, ice cream, jellied meats and other recipes and are valuable for many special diets.

FREIHOFER'S 100 PER CENT WHOLE WHEAT BREAD

Manufacturer.—The Freihofer Baking Company, Philadelphia.

Description.—A whole wheat bread made by the straight dough method.

Manufacture.—The dough ingredients, a mixture of whole wheat flour, water, salt, sucrose, lard, vinegar, yeast and a yeast food containing calcium sulphate, ammonium chloride, sodium chloride and potassium bromate, are mixed in a high speed mixer. The dough is fermented for about one and three-quarter hours, is folded, fermented twenty minutes, folded, fermented fifteen minutes, divided, molded, panned, baked about forty minutes, cooled, and wrapped in wax-paper. The factory, equipment and storage rooms for the materials used are kept in strictly sanitary condition.

Analysis (submitted by manufacturer).—

	per cent
Moisture (entire loaf)	36.8
Ash	2.1
Fat (acid hydrolysis method)	2.2
Protein (N × 6.25)	10.5
Crude fiber	1.6
Carbohydrates other than crude fiber (by difference)	46.8

Calories.—2.5 per gram; 71 per ounce.

Claims of Manufacturer.—A bread of good quality.

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SATURDAY, FEBRUARY 27, 1932

THE TESTICULAR HORMONE

Experimental and clinical evidence, as well as numerous studies of transplantations, indicates clearly that the testes possess one or more endocrine functions. The experimental evidence of the presence of an internal secretion of the testes has been based primarily on the effects observed on the removal of the testes. Although it has been stated from time to time that extracts of testicular tissue when injected into castrated animals produce various effects, many of which are associated with secondary sex characters, most workers in endocrinology have not accepted these statements because the criteria used for determining the effects of the extracts on castrated animals were of doubtful value. Probably the first report giving clear cut evidence of extracting and fractionating the hormone from testis tissue was given by McGee,[1] who obtained a lipin fraction from bull's testis which, when injected intramuscularly into brown leghorn capons, caused a remarkable growth of the comb, wattles and ear lobes. The response is prompt, increase in the size of the comb can be observed in from one to three days after the injection, and when the injections are discontinued the regression of the comb to the capon type takes place rapidly.

Most extensive studies of the action of the testicular hormone have been made by Moore[2] and his co-workers. He has developed several different mammalian tests for the presence of the hormone. The foundations for the criteria used in the mammalian tests were laid by the earlier studies of Moore and his students on the various effects observed as the result of castration of the rat and the guinea-pig. Earlier observations by Moore and Benoit[3] showed that the intact testis in situ or a cryptorchid testis prolongs the time of motility of the spermatozoa found in the epididymis. In the case of the completely castrated guinea-pig with the epididymis left intact, the spermatozoa never retained their motility beyond twenty-three to twenty-five days following castration, but by injection of the testis extract into the guinea-pig the time of motility of the spermatozoa was distinctly prolonged, the longest time being fifty-four days. The second mammalian test for the presence and action of the testicular hormone is the electrical ejaculation test. This test, originally discovered by Batelli in 1922, consists in causing the animal to ejaculate semen by an electrical stimulus through the brain. A normal guinea-pig if thus tested once a week yields a secretion of from 1.5 to 2 Gm. The material consists of secretions from the prostate and seminal vesicles and is distinctly fluid as ejaculated, but it soon coagulates to a firm jelly as a result of the coagulating enzymes present in the prostatic secretion. In the guinea-pig several weeks after castration these secretions are no longer normal; the result is that little or no material is ejaculated when the test is applied, and whatever material is secreted is exceedingly small and does not coagulate. Moore and Gallagher[4] have shown that if a castrated guinea-pig is injected with the testicular extract the loss of secretory function of both the seminal vesicles and the prostate can be corrected in that the secretion is near to the normal in amount and possesses the normal characteristics of the fluid. They have even taken an adult guinea-pig which has been castrated for six months and in which the ejaculation test had been found negative for some time and after from ten to fourteen daily injections of the extract obtained a normal ejaculation. The third mammalian test applied by Moore, Price and Gallagher[5] is that of the testis control on the cells of the prostate. In the castrated animal the entire prostate usually diminishes appreciably in size and rapidly shows striking degenerative and atrophic changes. These workers have shown that they can maintain the normal conditions of the cells of the prostate by daily injections of the hormone into the castrated animal. They have, in fact, stimulated the development of an apparently normal adult prostate in a prepubertally castrated rat 100 days old.

The fourth mammalian test applied by Moore, Hughes and Gallagher[6] is that of the testis control on the cells of the seminal vesicles of the rat. Here again it is now well known that the size and the cells of the seminal vesicles are controlled by the testes. In castrated animals, both of these are restored to the normal picture by the daily injections of the hormone. The same authors have also stimulated the production of the histologically normal adult seminal vesicle in the prepubertally castrated rat by injections of the hormone.

The studies thus far seem to indicate that from a qualitative point of view the comb growth reaction and the mammalian cytologic tests are of about the same order of delicacy. The spermatozoa motility test is approximately ten times as sensitive as the comb growth method, and the ejaculation test is the least delicate of all.

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[1] McGee, L. C.: Proc. Inst. Med. Chicago **6**: 242, 1927.

[2] Moore, C. R.: Proc. Soc. Exper. Biol. & Med. **24**: 847, 1927; J. Exper. Zool. **1**: 455 (April 5) 1928. The Regulation of Production and the *Function of the* Male Sex Hormone, J. A. M. A. **97**: 519 (Aug. 22) 1931.

[3] Benoit: Univ. Strasbourg thesis, 1925.

[4] Moore, C. R., and Gallagher, T. F.: Am. J. Physiol. **89**: 388 (July) 1929; Am J. Anat. **45**: 39 (Jan.) 1930.

[5] Moore, C. R.; Price, Dorothy; and Gallagher, T. F.: Am. J. Anat. **45**: 71 (Jan.) 1930.

[6] Moore, C. R.; *Hughes, Winifred;* and Gallagher, T. F.: Am. J. Anat. **45**: 109 (Jan.) 1930.

After this substance had been found in bull's testis, it was deemed important to determine that the substance is specifically present in testicular tissue and not possibly a general extractive that may be found in various tissues. Thus far this substance has been found in bull calf, embryonic calf and hog testicles. Gallagher[7] examined other bull tissues and found the hormone in only one other organ, the epididymis. He repeatedly obtained negative results from bull blood, although recently Womack and Koch[8] obtained evidence of its presence when the equivalent to that obtainable from 600 cc. of bull blood was injected into capons daily. Loewe and Voss,[9] as well as Funk, Harrow and Lejwa,[10] found it in human male urine. Womack and Koch have also found the hormone in adult male and female urine but not in the urine from boys under 10 years of age. The source of the hormone in adult female urine is a mystery. Loewe and his co-workers also report detecting the hormone in the male blossoms of Salix caprea.

It at once became apparent to these workers that in order to make progress in the purification of this extract it would be necessary to have a quantitative method for determining the amount; and as there are at present no chemical methods of measuring it, biologic effects for assay must be used. Thus far the quantitative assay of preparations of testicular hormone has been limited to comb growth and seminal vesicle tests. Gallagher and Koch[11] have studied the former reaction in detail and conclude that the increase in comb size is a reliable quantitative criterion provided the growth is obtained in five days, is the average from five birds, and as expressed in increase in length plus increase in height is from 3 to 7 mm. and preferably 4 to 6 mm. They define their bird unit as the amount of hormone which, when injected intramuscularly daily for five days, causes an average of 5 mm. in the sum of the increase in length and height of the comb of at least five brown leghorn capons. Womack, Koch, Domm and Juhn[12] recently showed that the growth response to a given dose of the hormone in the capon is influenced by the amount of light to which the bird is exposed.

The mammalian tests are at present not as suitable for quantitative assays as the comb growth method. The rat unit of the male hormone as determined by Moore and his co-workers[13] is defined as the minimal daily amount required to maintain 50 per cent of castrated animals in a normal condition, the index being normal prostate and seminal vesicle. Twenty days after castration has proved to be sufficient time for the injections to express their true potency.

While the exact chemical nature of the hormone is not known, some of the chemical properties have been determined. It is found in the lipoid fraction and in general can be fractionated by methods similar to those employed for the female sex hormones. The material is resistant to temperature, acids, alkalis and oxygen. The yield of the hormone is exceedingly low. In the earlier studies it was necessary to inject the equivalent of from one-half to one pound of testicular tissue to make an assay on the capon. With better methods of comb measurement and further purification of material, effects are observed from injections representing much less original tissue. The most active and probably purest preparation thus far obtained is one in which a dose of 0.01 mg. of the active material per capon daily causes distinct comb growth. The product acts best when injected subcutaneously or intramuscularly; the dose for action by mouth is at least ten times as high.

In the light of the results obtained on animals, it is reasonable to suppose that similar results will hold with reference to man. Thus far there has been no indication that the product can be of any value in restoring "vigor" to the aged or neurasthenic. However, if there is an indication for its use and if the dosage in man is comparable to that effective in the capon, the daily injection for a man weighing 150 pounds would have to be an amount equivalent to 5 pounds of bull's testis or 2 gallons of normal male urine. If taken by mouth, the dosage presumably would have to be much larger. These deductions, based on animal experimentation, indicate the probable fallacy of prescribing testis preparations to man.

DIET AND THE PRODUCTION OF HUMAN MILK

There has never been a time, perhaps, when so much thought and enthusiasm have been concentrated on the problems of infancy and childhood as at present. The recent White House Conference on Child Health and Protection, called by President Hoover, represented the results of months of careful deliberation by many experts from all parts of the country. The chairman of the conference, Dr. Ray Lyman Wilbur,[1] has pointed out that we have injected so many artificial conditions into our industrial civilization that the old normal relationships of mother and child, child and family, family and neighborhood, have been changed. There is now a much less direct struggle with nature and its immediate forces than has ever been the situation before in our country. We have softened this struggle for man, Wilbur adds, by all forms of protection—better houses, better clothing, more and better food supplies, preventive medicine, and better medicine and sanitation in general. All of this has called for a delegation of functions, once performed by the individual in the home, to all sorts of outside dependence.

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[7] Gallagher, T. F.: Am. J. Physiol **87**: 447 (Dec.) 1928.

[8] Womack, E. B., and Koch, F. C.: Proc. Second International Congress for Sex Research, 1930.

[9] Loewe, S., and Voss, H. E.: Klin. Wchnschr. **6**: 500, 1927; Akad. Anzg. der. Akad. d. Wissensch. in Wien, 1929, number 20.

[10] Funk, C.; Harrow, B., and Lejwa, A.: Proc. Soc. Exper. Biol. & Med. **26**: 569, 1930; Am. J. Physiol. **92**: 440, 1930.

[11] Gallagher, T. F., and Koch, F. C.: J. Pharmacol. & Exper. Therap. **40**: 327, 1930.

[12] Womack, E. B.; Koch, F. C.; Domm, L. V., and Juhn, Mary: J. Pharmacol. & Exper. Therap. **41**: 173 (Feb.) 1931.

[13] Moore, C. R., and Gallagher, T. F.: J. Pharmacol. & Exper. Therap. **40**: 341 (Nov.) 1930.

[1] White House Conference, 1930, New York, Century Company, 1931.

There is a period of life, in infancy, when the rôle of the mother is unquestionably paramount in that she supplies through her maternal tissues the nutrition of her young. The words of Mrs. Rose[2] "Happy the baby who enjoys his inalienable right of Nature's food supply—his own mother's milk" constitute a slogan worth frequent repetition. Modern investigation is disclosing in increasing measure that even mother's milk is susceptible to marked variations. The human mother, like other lactating individuals, is subject to the influence of her own diet, which may be reflected to some extent in the composition of her milk. One cannot study the elaborate investigations of Macy and her co-workers in Detroit[3] without realizing that even human milk is a variable to an extent that must have some varying effects on the young that are dependent on it. In a study made by Hoobler[4] in Detroit in 1917 he reached the conclusion that different types of protein in the maternal ration unmistakably influence the milk produced. Broadly speaking, he maintained that diets rich in proteins, particularly those of animal origin, are beneficial. He insisted that it was not easy to keep human lactating mothers in positive nitrogen balance on diets in which the protein was derived exclusively from vegetable sources. There is always the danger that a mother will "milk the flesh off her back" in the production of her breast milk.

Investigation of the problems of the effect of diet on human milk secretion involves personal difficulties of obvious sorts. It is laborious, and progress will inevitably be slow. Physiology is therefore compelled to consider the contributions to our knowledge that can be made by other species than man. There is an elaborate literature on the mammary secretion of cattle; but the conditions that refer to these vegetarian ruminants are not always applicable to mankind. A recent writer,[5] referring to cows and goats, recalls that they are the result of several centuries of intensive breeding and that the capacity of the mammary gland, and probably their entire metabolism, has been so specialized that we are not able to make direct comparisons of the results in these animals with those on other animals and on human beings, wherein the process of milk secretion has not been so highly developed. Working at the University of Rochester, N. Y., Daggs[5] has investigated the mammary functions of dogs. Balanced diets were fed during the period of lactation, the only variable being the source of the protein. The results indicate that there are conditions in which a degree of betterment in lactation can be brought about by changing the dietary protein. For example, in these experiments liver was a much better source of protein for lactation than either egg or round steak. In fact, his conclusion that liver is the best source of protein (of those tried) for milk production in dogs is borne out by the quantity of milk produced, the fat content of the milk, the nitrogen retention, and the slope of the growth curve of the pups. As far as human experience is concerned, it matters not so much what proteins or dietary factor may for the moment be emphasized in the progress of investigation. The feature of moment is that the problems of human lactation call for extensive research at the earliest opportunity to insure that the "inalienable rights" of the nursling shall be safeguarded by the prepared intelligence of those to whom the responsibility for human well being is entrusted.

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[2] Rose, Mary S.: *Feeding the Family*, ed. 3, New York, Macmillan Company, 1929.

[3] Human Milk Studies, editorial, J. A. M. A. **97:** 1540 (Nov. 21) 1931.

[4] Hoobler, B. R.: The Effect on Human Milk Production of Diets Containing Various Forms and Quantities of Protein, Am. J. Dis. Child. **14:** 105 (Aug.) 1917.

[5] Daggs, R. G.: Studies on Lactation: I. Production of Milk in the Dog as Influenced by Different Kinds of Food Proteins, J. Nutrition **4:** 443 (Nov.) 1931.

Current Comment

CALCIUM AND HYPERCALCEMIA

Ever since the discovery that irradiated ergosterol (viosterol) can affect the metabolism of calcium and phosphorus in the body, interest has centered in the mechanism by which the characteristic changes are brought about. Closely related to this problem are the toxic manifestations that can be produced by enormous doses of viosterol. It was early established that this substance can be made to mobilize calcium in such a way as to induce a condition of hypercalcemia. The question arose, therefore, as to whether this condition is due to an enhanced absorption of calcium from the food sources in the alimentary tract or whether the alkali earth is drawn from depots within the organs and tissues. The replies have been contradictory until quite recently. Now, however, a harmony of opinion seems to have been attained. Two independent groups of investigators[1] have demonstrated that hypercalcemia can be brought about, even in the almost complete absence of calcium from the diet, by giving sufficiently large doses of viosterol. As Hess[1] has pointed out, the failure of investigators to bring about this condition and their conclusion that the source of the excess calcium in this form of hypercalcemia is the food and not the tissues is due to the fact that viosterol was given in insufficient amounts. The immediate source of the calcium under the admittedly extreme conditions cited is in the bones, the great storehouse of the element in the body. Hypercalcemia in experimental animals was greatly reduced by intravenous injections of a solution of sodium bicarbonate. Following reduction by such means, a marked excess of calcium and phosphorus was found in the lungs and the kidneys. These investigations represent extreme conditions so far as the overdosage with viosterol is concerned; nevertheless, they indicate how drafts may be made on the inorganic storehouse of the bones in times of stress. When an abundance of dietary calcium is available under conditions that can favor its ready absorption, the results of hypercalcemia are far less drastic.

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[1] *Jones, J. H., and Rapoport*, M.: Further Observations on the Relation of Calcium and Phosphorus Intake to the Hypercalcemia and Hyperphosphatemia Induced by Irradiated Ergosterol, J. Biol. Chem. **93:** 153 (Sept.) 1931. Hess, A. F.; Benjamin, H. R., and Gross, J.: The Source of Excess Calcium in Hypercalcemia Induced by Irradiated Ergosterol, J. Biol. Chem. **94:** 1 (Nov.) 1931.

EXERCISE AND THE VITAMIN B REQUIREMENT

Few scientific questions in relation to nutrition are of greater interest at present than those relating to the functional rôles of the vitamins. How do these indispensable food factors act in the body, or what specific purposes do they serve? For some of the vitamins the answers seem to be clarifying. In the case of vitamin A, for example, its importance for the maintenance of a perfect nutritive status in some of the epithelial tissues of the body has been well established. When there is lack of the essential substance for any considerable period, keratinization of certain epitheliums inevitably ensues. In view of the stimulating effect of vitamin B on appetite, some of the earlier students of the subject assumed the existence of a relationship between this vitamin and the secretory functions of various glands; but experiment has not substantiated this view. More compelling have been the attempts to connect vitamin B with metabolism, though the actual possible relationships are by no means clear at present. Reviewing the animal investigations of recent years, Sherman and Smith[1] conclude that a pronounced deficiency in vitamin B is followed by failure of appetite, decreased food consumption, and finally starvation, resulting in gastric and intestinal atony, fall of body temperature and death. A serious deficiency of vitamin B in human nutrition, these authors add, will lead to beriberi or, under less drastic conditions, to failure of appetite, possibly minor digestive disturbances, and loss of stamina. In a recent study at Yale University by Cowgill and his collaborators,[2] comparisons were made between the vitamin requirement of resting animals and those of muscular activity. Advantage was taken of the now well demonstrated fact that the capacity for storage of vitamin B in the body is rather limited. In each case of increased exercise the period required for the development of the anorexia characteristic of lack of the vitamin B complex was markedly less than the time required when forced exercise was not given. These observations are considered to support the interpretation that the vitamin B requirement per unit of tissue mass is proportional to the metabolism of that mass. These results also support the observations of other investigators showing a relationship between vitamin B and metabolism. The observations do not solve the question of the possible relation of vitamin B to the metabolism of any particular nutrient.

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1. Sherman, H. C., and Smith, S. L.: The Vitamins, ed. 2, New York, Chemical Catalog Company, 1931.
2. Cowgill, G. R.; Rosenberg, H. A., and Rogoff, J.: Studies in the Physiology of Vitamins, Am. J. Physiol. 98: 589 (Nov.) 1931.

Association News

MEDICAL BROADCAST FOR THE WEEK

American Medical Association Health Talks

The American Medical Association broadcasts on Monday from 12 noon to 12:05 p. m., over Station WBBM (770 kilocycles, or 389.4 meters) and other stations of the Columbia Broadcasting System, and on Wednesday and Friday from 2:25 to 2:30 p. m., over Station WBBM, Chicago.

The program for the week is as follows:

February 29. Running Water is Not Always Pure.
March 2. First Aid.
March 4. Accidents and Tuberculosis.

There is also a fifteen minute health talk sponsored by the Association on Saturday from 11:15 to 11:30 a. m.

The program for the week is as follows:

March 5. How Mothers Can Help Prevent the Spread of Contagion in School.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Sale of "Koremlu" Forbidden.—Dr. Jacob C. Geiger, director of public health of San Francisco, recently issued an executive order which forbids in that city the sale of Koremlu, a depilatory containing thallium acetate. This action followed a conference of a number of dermatologists practicing in San Francisco and the publication in THE JOURNAL of articles referring to Koremlu. Three cases of retrobulbar neuritis, ascribed to this depilatory, were reported by Dr. William Mahoney, Boston, in THE JOURNAL, February 20, p. 618.

Survey of Typhoid Carriers.—Drs. Arthur Hieronymus and Ralph W. Sanders, health officers of Oakland and Alameda, respectively, recently completed surveys of known typhoid carriers residing in the two cities. Specimens were obtained from all carriers and examinations were made in laboratories to determine whether such individuals are still carriers. Information relative to the compliance of the carriers with regulations for their control was also obtained. It is planned to make similar surveys at least twice each year, according to the bulletin of the state department of health.

Lectures at University.—Dr. Henry E. Sigerist, director, Institute of the History of Medicine, University of Leipzig, Leipzig, Germany, gave three lectures under the auspices of the University of California Medical School. Two of these lectures, "The Evolution of Medical Ethics," January 19, and "Medicine of the Renaissance," January 22, were given in San Francisco, and the third, "Civilization and Disease," January 20, was given in Berkeley. Dr. Willis C. Campbell, professor of orthopedic surgery, University of Tennessee School of Medicine, Memphis, addressed the faculty and students of the medical school, January 23, on "Treatment of Ununited Fractures."

Society News.—At a joint meeting of the Los Angeles County Medical Association and the Los Angeles County Heart Association, February 18, the speakers included Drs. John C. Ruddock and Arthur S. Granger, Los Angeles, on "Treatment of Thyroid Heart Disease" and "Use and Value of Drugs in Heart Disease," respectively. Dr. C. Frederic Fluhmann, San Francisco, addressed a joint meeting of the San Fernando Valley Branch of the county medical society and the Hollywood Academy of Medicine, February 25, on sex hormones in the study of pelvic disease.——Dr. Johannes M. Nielsen addressed the Los Angeles Society of Neurology and Psychiatry, February 24, on "Progressive Spinal Muscular Atrophy."——Dr. Loyal Davis, Chicago, addressed the San Diego County Medical Society, February 9, on "Effects of Various Diagnostic and Therapeutic Solutions on the Spinal Cord and Its Membranes."

CONNECTICUT

Standard Forms for Registration of Births and Deaths.—The bureau of vital statistics, January 1, adopted standard forms for the registration of births and deaths for the use of registrars of the state in accordance with the action of the public health council of the Connecticut Department of Health. This system will aid in the compilation of comparable statistics from state to state and will assist the federal government in compiling uniform statistics for the nation.

Low Mortality Rate.—Connecticut maintained the same low death rate (10.5) in 1931 that it recorded in 1930. The infant mortality rate of 53.9 deaths of infants under 1 year of age per thousand live births is a record low rate. The lowest rate (0.9) in the history of the state was noted for diphtheria. The tuberculosis death rate for all forms (54) is also a record death rate, as is the rate of 73.7 for all the pneumonias. The maternal mortality rate (4.7 per thousand living births) is the lowest rate to appear in the records of the state.

GEORGIA

Society News.—Dr. Thomas P. Goodwyn, Atlanta, addressed the Fulton County Medical Society, Atlanta, Dec. 3, 1931, on "Fractures of the Upper End of the Tibia Involving the Articular Surfaces." The program of the society, January 21, included a paper by Dr. Dunbar Roy on "Some Practical Points in Refraction Based on the Histories of Eighteen Thousand Cases." Dr. Olin S. Cofer spoke, February 4, on "Treatment of Prolapse of the Uterus."——Dr. Roger W. Dickson presented a case of Hirschsprung's disease before the Fulton County Pediatric Society, February 11.——Dr. Robert A. Berry, Americus, has resigned as health officer of Sumter County, it is reported, to enter private practice at Piedmont, S. C.

ILLINOIS

Society News.—The Peoria City Medical Society was addressed, February 11, by Drs. Raymond W. McNealy on "Recent Advances on the Treatment of Fractures"; Samuel J. Fogelson and Arthur J. Atkinson, "Mucin Therapy in Gastric and Duodenal Ulcer," and Charles A. Elliott and M. Herbert Barker, all of Chicago, "Modern Conception of Renal Disease."——At the meeting of the Ogle County Medical Society, Rochelle, January 14, Drs. Chester C. Guy and LeRoy H. Sloan, Chicago, spoke on "Common Surgical Mistakes as Seen by the Pathologist" and "Differential Diagnosis of Substernal Pain," respectively.——Dr. Drew W. Luten, St. Louis, addressed the St. Clair County Medical Society, East St. Louis, February 4, on "Coronary Sclerosis."

Increase in Immunization Work.—According to the state health director, the volume of "preventive practice" in relation to the prevalence of certain diseases subject to control through vaccination and diagnosis by laboratory procedure increased in Illinois during 1931. The amount of toxoid and toxin-antitoxin distributed by the department indicates that twenty-one children were immunized against diphtheria for each case reported in 1931, against sixteen to one in 1930, and eleven to one in 1929. For each case of smallpox fifty-four persons were vaccinated in 1931 compared with fifteen per case in 1930 and twenty-one per case in 1929. Against typhoid, twenty people were vaccinated per case in 1931 compared with twenty-one per case in 1930 and twelve per case in 1929. The diagnostic laboratories of the department of health examined for typhoid thirteen specimens per case reported in 1931 compared with 9.5 per case in 1930. For diphtheria there were 2.5 specimens per case examined in 1931 compared with 1.4 per case in 1930. The rate for tuberculosis was 1.5 specimens per case in 1931 and 1.4 in 1930. For these three diseases 40,155 specimens were examined during 1931 against 35,984 in 1930, although the aggregate number of cases reported declined from 18,997 to 16,667.

Chicago

Search for Precocious Students.—Northwestern University is conducting a search for precocious students who meet all university requirements but who are from 13 to 15 years of age. The announcement states that while the problem of what to do with the precocious child after graduation from high school is recognized, no university has attempted to approach the problem by evolving a special program for such students. By precocious, it was pointed out, is implied an intelligence quotient of more than 130 or such youthful attainments as were characteristic of Jeremy Bentham, who wrote Greek and Latin at the age of 5 and prepared to enter Oxford at 10; Benjamin Franklin, publisher of a newspaper at 17, and George Washington, a professional surveyor at 15. Special provisions will be made to meet the needs of the superior students at Northwestern. There are two such students in the school at present, but it is felt that they have lacked an adequate environment. It is planned to offer this environment to the students next year. Of the four precocious students who have entered the university, one is the author of several novels and many short stories and is now editor of two magazines, and one recently was awarded a Rhodes scholarship to Oxford University. A letter has been sent to a selected list of high school principals apprising them of Northwestern's desire to aid the precocious student.

INDIANA

Personal.—By the will of the late Dr. Daniel L. Miller, Goshen, $4,000 is to be invested in securities, the income to be used for twenty years in providing Christmas dinner for needy children, after which the principal will go to Goshen Hospital for paying hospital expenses of poor persons.——Josiah K. Lilly, Sr., president of Eli Lilly and Company for thirty-four years, will retire as president, it has been announced. During the World War, the firm outfitted a base hospital corps for service, Mr. Lilly personally contributing $15,000 to this project.

Graduate Course.—A graduate course in otolaryngology will be given at Indiana University School of Medicine, Indianapolis, April 18-30. The course, which will be under the supervision of Dr. John F. Barnhill, will be supplemented by clinical demonstrations and operations during the morning hours. Time will be spent in the anatomic laboratories in the afternoon and evening. Completion of the course will give a total of eighty-four hours of anatomic study and thirty-six hours of clinical instruction and observation. The fee for the course will be $75, which covers the cost of anatomic material. Further information may be had from Dr. Willis D. Gatch, acting dean of the medical school.

Society News.—At the meeting of the Tri-County Medical Society in Columbus, Dec. 17, 1931, Dr. John W. Carmack, Indianapolis, spoke on "Upper Respiratory Infections."——Dr. George A. May, Madison, addressed the Jefferson County Medical Society, January 25, on acidosis.——The Wabash County Medical Society, North Manchester, heard Dr. Louis A. Sandoz, South Bend, discuss skin disease, January 7.——The Elkhart County Medical Association was addressed, January 7, by Dr. Charles O. McCormick, Indianapolis, on "Rectal Ether Analgesia in Obstetrics."——A symposium on prostatic diseases was conducted before the Cass County Medical Society at Logansport, January 22.——The Jackson County Medical Society was addressed at Seymour, January 7, by Dr. Frank M. Gastineau, Indianapolis, on "Some Phases of Syphilis."——The Wells County Medical Society was addressed at Bluffton, February 2, by Drs. William O. McBride and Juan Rodriguez, Fort Wayne, on "Sinus and Middle Ear Infection."——Dr. Hiram E. Ross, Danville, Ill., addressed the Fountain-Warren Medical Society at Williamsport, February 4, on "Skull Fractures—Early Care and Treatment."——At a meeting of the Huntington County Medical Society, February 2, Dr. Lloyd L. Ely, Indianapolis, spoke on "Diabetic Diets."——The Daviess-Martin Medical Society was addressed, January 26, by Dr. Robert G. Moore, Vincennes, on "Observations of Chronic Diseases of the Chest."——Dr. Louis H. Clerf, Philadelphia, addressed the Tippecanoe County Medical Society, February 11, on "Bronchoscopic Aid in the Diagnosis and Treatment of Pulmonary Diseases."

KENTUCKY

Society News.—The Jefferson County Medical Society was addressed, February 15, by Drs. William L. Sneed and James J. King, New York, on "Treatment of Delayed Union in Fractures and of Ununited Fractures" and "Treatment of Brain Abscess," respectively.——Dr. Milton W. Williamson, Atlanta, Ga., has been appointed health officer of Green County to succeed Dr. Agnes M. C. Locke, Greensburg, resigned.——Drs. Leslie H. Winans and Samuel C. Smith addressed the Boyd County Medical Society, Ashland, February 1, on diseases of the chest and diseases of the kidney, respectively.

Illness Among School Children.—Forty children, two teachers and the janitor at the Snyder School, Owensboro, became ill within twelve hours recently, with nausea, vomiting and diarrhea as symptoms. The investigation disclosed that only part of the sick children had eaten the lunch served at school. Analysis of the water showed some Bacillus coli present, but of insufficient quantity to cause the illness. According to Dr. George L. Thompson, Owensboro, director, Daviess County Health Department, February 16, the investigation indicated the illness may have been caused by gas from the school furnace.

Bills Introduced.—H. 604 proposes to reduce to not more than $10 the annual occupational tax required of physicians, surgeons or dentists in cities of the first class. H. 633 proposes to make it unlawful for any person habitually to use morphine, cocaine, eucaine, heroin, or other derivatives of opium or coca leaves, except as prescribed by a licensed physician in the course of treatment. H. 634 proposes to make it unlawful for any person to possess, sell, manufacture or distribute in any other than its natural state any marihuana, Indian hemp or hasheesh, "except under the direction and in the course of treatment by a licensed physician."

MARYLAND

Society News.—The Johns Hopkins Medical Historical Club was addressed, February 15, by Col. Fielding H. Garrison on "The Children of Robert and Clara Schumann: A Study in Family History," and Dr. Lewellys F. Barker, Baltimore, "Medicine in Soviet Russia."——Dr. Arthur M. Shipley, Baltimore, discussed the film "Traumatic Surgery of the Extremities," which was shown before the Baltimore County Medical Society, February 17.

Personal.—Roscoe Raymond Hyde, Ph.D., has been appointed professor of immunology at the School of Hygiene and Public Health, Johns Hopkins University, Baltimore. The position was left vacant last May by the death of Dr. Carroll G. Bull. Dr. Hyde has been connected with the School of Hygiene and Public Health since its beginning in 1918 and was associated with Dr. Bull as senior associate in immunology until 1928, when he took over the work of the department of filtrable viruses.——Dr. Joseph Pokorny, connected with the Baltimore City Health Department, has been appointed coroner at large and assigned to the investigation of automobile fatalities.

MASSACHUSETTS

Bill Enacted.—S. 35, approved by the governor, February 8, has been enacted as Chapter 8, Laws of 1932. The new law amends the prior law with respect to the necessary qualifications for membership on the Board of Registration in Medicine by requiring members to be registered as qualified physicians under the Massachusetts law and omitting the provisions of the prior law specifically stating that members be graduates of a legally chartered medical college or university.

Society News.—At the third annual meeting of the New England Obstetrical and Gynecological Society in Boston, Dec. 2, 1931, Dr. Edward S. Brackett, Providence, R. I., was elected president, and Dr. Joseph W. O'Connor, Worcester, secretary.——Dr. Homer F. Swift, New York, addressed the New England Pediatric Society, Dec. 11, 1931, on "Recent Progress in Research Work in Connection with Rheumatic Fever."——A joint meeting of the Greater Boston Medical Society and the Beth Israel Hospital was addressed, Dec. 9, 1931, by Drs. Moses Swick, New York, on "Intravenous Urography as a Diagnostic Aid," and Ernest Granville Crabtree, "Practical Applications of Intravenous Urography."——Dr. Thomas F. O'Brien, Worcester, addressed the Webster-Dudley Medical Club in Webster, Dec. 16, 1931, on "Conduct of Normal Labor."——Dr. John F. Fulton, Jr., New Haven, Conn., addressed the Harvard Medical Society, Dec. 8, 1931, on "Evolution of the Babinski as Illustrated in the Monkey, Baboon and Chimpanzee."——Michael M. Davis, Ph.D., Chicago, addressed a joint meeting of the Boston Medical Library and the Suffolk District Medical Society, January 27, on "Paying Your Sickness Bills."——The Norfolk District Medical Society was addressed, January 26, by Drs. Frederick W. O'Brien on "Natural and Artificial Light in the Treatment of Tuberculosis"; Albert Ehrenfried, "Artificial Pneumothorax and Phrenicectomy," and Samuel C. Cline, "Nose and Throat Conditions in Tuberculosis."

MICHIGAN

Orthopedic Association Organized.—The Orthopedic Association of Michigan was recently established, principally for the purpose of cooperating with the State Commission for Crippled Children in the care of indigent cripples from all parts of the state. Provision has been made in the association for associate members who must have had some training in orthopedic surgery but who do not necessarily devote their full time to this specialty. Their function is to cooperate in the after-care of the cripples, but they are not yet allowed to carry out any operative procedures, according to the *Journal of Bone and Joint Surgery*. The group of physicians who organized the association are Drs. Carl E. Badgley, William E. Blodgett, Frank E. Curtis, Robert V. Funston, Angus G. Goetz, Frederick C. Kidner, Alfred D. La Ferté, Charles W. Peabody, Frank H. Purcell, Daniel M. Stiefel, Detroit, Vernon L. Hart, Ann Arbor, and John T. Hodgen, Grand Rapids.

Dr. Clark Honored.—Dr. John E. Clark, Detroit, was guest of honor at a luncheon given by the "Seniors Club" of the Wayne County Medical Society, February 12, in the society's new home. Dr. Clark has been county chemist for thirty-five years. He joined the Wayne County Medical Society in 1878 and is the oldest living member. The tribute to Dr. Clark was in recognition of his contribution to the health of the community during the past half century, as well as for his untiring efforts to aid organized medicine in Michigan. Dr. Louis J. Hirschman was toastmaster at the luncheon, which was attended by seventy-three physicians. Dr. Harry W. Plaggemeyer, president of the Wayne County Medical Society, presented a life membership to Dr. Clark. The speakers included Dr. Oscar S. Armstrong, who graduated with Dr. Clark from the University of Michigan Medical School, 1877, and Dr. Walter J. Cree, who is Dr. Clark's oldest living student.

MINNESOTA

Chiropractor Sentenced.—Frederick I. Sheldon, Minneapolis, licensed chiropractor, pleaded guilty, February 2, to a charge of practicing medicine without a license. Sheldon was sentenced by Judge Reed of the district court to a term of three months in the Minneapolis workhouse. The sentence was stayed for one year.

Society News.—Dr. William W. Duke, Kansas City, Mo., will address the Hennepin County Medical Society, Minneapolis, March 7, on allergy. Dr. James S. McCartney, Jr., Minneapolis, gave demonstrations of pathology of the liver before the society, February 24, and Marjorie Taylor, director, Milwaukee Curative Workshop, spoke on "Place of the Curative Workshop in the Community." Dr. Leo M. Czaja, Chicago, addressed the society's meeting, February 17, on "Maggot Treatment of Osteomyelitis."

MISSISSIPPI

Bill Introduced.—H. 273 proposes to authorize the board of supervisors of any county to contract with a hospital for the medical and surgical treatment and hospitalization of the poor of the county, provided that not more than $2.50 a day for each patient may be so expended by the board.

NEW HAMPSHIRE

Personal.—Dr. Alphonse Wilfred Petit, Nashua, was the guest of honor at a dinner and reception given by citizens of Nashua, January 7, celebrating his completion of fifty years of medical practice in that city. Dr. Petit was graduated from Victoria University Medical Department, Montreal, in 1877, and came to Nashua in December, 1881.

NEW JERSEY

Tribute to Dr. Danzis.—The medical staff of Newark Beth Israel Hospital gave a dinner, February 11, in honor of Dr. Maximillian Danzis, chief of staff, marking his completion of thirty years' service to the institution. An oil painting of Dr. Danzis was presented to the hospital by Dr. Charles M. Robbins on behalf of the staff and accepted by Frank I. Liveright, president of the board of directors. Dr. Paul Keller, executive director of the hospital, presided; among the speakers were David I. Kelly of the Essex County Park Commission and Dr. Wells P. Eagleton. Dr. Danzis was born in Russia in 1874, and came to Newark in 1890.

Bills Introduced.—S. 98, to amend the workmen's compensation act, proposes to add pneumoconiosis to the list of compensable occupational diseases. S. 138, to amend the dental practice act, proposes that the certificate of the board of registration and examination in dentistry that the records of the board show or fail to show the issuance of a license to practice dentistry, or of an annual certificate of registration, shall be prima facie evidence of those facts in proceedings in which the board may be a party. S. 150 proposes to permit any trial judge, whenever in his opinion it may be necessary to settle the issues of any pending cause, to appoint, on his own motion, or on the motion of either party to the action, one or more disinterested expert witnesses. The appointment of such expert witnesses by the court is not to prevent either party from calling its own expert witnesses. A. 170, to amend the dental practice act, proposes (1) to add to the causes for which licenses may be revoked (*a*) conduct unbecoming dental practitioners, (*b*) violation of any rules or regulations promulgated by the board; (2) to permit notices of revocation proceedings to be served by registered mail; (3) to raise the annual registration fee required of dentists to $3, and (4) to prohibit the practice of dentistry by corporations. A. 172, to amend the pharmacy practice act, proposes to discontinue the licensing of assistant pharmacists. A. 174 proposes to authorize the board of medical examiners to create a division to be known as the "Division of Medicinal Liquor," and to promulgate such regulations as will allow licensed physicians to use their own judgment as to amount necessary in the prescribing of intoxicating liquor for medicinal purposes. A. 176 proposes that marriage licenses shall not be issued when either of the contracting parties at the time of making the application is infected with a venereal disease in a communicable stage; is an imbecile, epileptic or of unsound mind; or is or has been an inmate of an insane asylum, unless it appears that such person has been discharged as cured from the asylum. A. 224, to supplement the pharmacy practice act, proposes to limit the use of the terms "pharmacy," "drug store," "apothecary shop," etc., to places supervised by registered pharmacists. A. 253 proposes to establish a Department of Hospitals and Charities and to consolidate therein the Commission for the Amelioration of the Condition of the Blind, Board of Children's Guardians, Rehabilitation Clinics of the Department of Labor, Commission for the Rehabilitation of Physically Handicapped Persons and Boards of Managers of Institutions. A. 257 proposes to establish a Department of Health to succeed to and exercise all the rights and powers and to discharge all the duties now exercised and charged on the State Board of Health. A. 325, to amend the law regulating the practice of chiropody, proposes that the fitting, recommending or the sale of corrective shoes, arch supports or similar mechanical appliances by retail dealers shall not be deemed to be the practice of chiropody. A. 334, to amend the laws regulating the practice of chiropractic, proposes to authorize the board of medical examiners to permit any veteran of the World War, having the educational requirements specified by statute, to be licensed without examination to practice chiropractic.

NEW YORK

Personal.—Mr. Harvey J. Hill, White Plains, who originated the plan of the annual Red Cross roll-call, died suddenly, January 28, at the age of 51.——Dr. Charles C. Murphy, Amityville, president of the Suffolk County Medical Society, has accepted the chairmanship of the Suffolk County committee of the American Society for the Control of Cancer.

Society News.—Dr. Aaron S. Blumgarten, New York, spoke on "Practical Endocrinology," before the Nassau County Medical Society, Mineola, January 26.——Three papers on coronary diseases were presented before the Medical Society of the County of Albany, at Albany, January 20, by Drs. Charles A. Perry, James F. Rooney and Arthur W. Wright.——Dr. Joseph A. Johnston, Detroit, addressed the Saranac Lake Medical Society, February 3, on "Studies in Carbohydrate Metabolism."

Bills Introduced.—A. 895 proposes to permit a divorce, among other causes, where either spouse is insane or is physically incapacitated. A. 949 proposes to modify the limitations placed by law on the practice of physical therapy by technicians by allowing such technicians to use in the treatment of diseases, without the supervision of a licensed physician, actinotherapy, hydrotherapy, mechanotherapy, thermotherapy and electrotherapy, exclusive of the roentgen ray, and to diagnose and prescribe therefor. A. 1040 proposes to permit either spouse to institute proceedings to annul a marriage by reason of the lunacy of the other spouse.

New York City

Society News.—Dr. Samuel Weiss demonstrated a photographic gastroscope and showed a color film depicting the normal and abnormal states of the stomach before the New York Physicians Association, January 27.——Drs. Emil Koffler and Nathan B. Van Etten addressed the Bronx County Medical Society, February 17, on "State Health Insurance in European Countries" and "Recent Evolutions of Economics of Medical Service," respectively.——Dr. Salvatore di Palma gave a lecture under the auspices of the Medical Society of the County of Queens, February 5, on "New Treatment of Nonseptic Incomplete Abortions." Dr. Adolph G. De Sanctis gave a lecture on "Convulsions in Infancy and Early Childhood," February 19.——Drs. Thomas M. Rivers and Robert T. Frank addressed the Medical Society of the County of Kings, February 16, on "Nature of Viruses" and "Gynecological Conditions and Their Treatment in Children and Adolescents," respectively.——Drs. Martin E. Rehfuss, Philadelphia, and John B. D'Albora addressed the Medical Association of the Greater City of New York, February 15, on "Medical Treatment of Gallbladder Disease" and "Treatment of Ulcerative Colitis," respectively.

Friday Afternoon Lectures.—The Medical Society of the County of Kings has announced the program of its spring series of Friday afternoon lectures to be given at McNaughton Auditorium in Brooklyn. The speakers with their subjects are as follows:

Dr. Harrison S. Martland, Newark, N. J., "Pathology of the Heart," March 4.
Dr. Samuel A. Loewenberg, Philadelphia, "Differential Diagnosis of Acute Abdominal Conditions," March 11.
Dr. Theodor Blum, Manhattan, "More Common Diseases of the Teeth and Jaws," March 18.
Dr. I. Harris Levy, Syracuse, "Cancer of the Stomach," April 1.
Dr. Bernard Samuels, Manhattan, "Common External Diseases of the Eye and Their Treatment," April 8.
Dr. Dean Lewis, Baltimore, "Osteomyelitis," April 15.
Dr. Ernst P. Boas, "Treatment of Circulatory Failure," April 22.
Dr. Israel Strauss, "Neurological Diagnosis in General Medicine," May 6.
Dr. Louis E. Phaneuf, Boston, "Diagnosis and Management of Uterine Bleeding," May 13.

Medical Publications of Washington's Time.—As a contribution to the celebration of the two hundredth anniversary of the birth of George Washington, the Medical Society of the County of Kings has placed on exhibition in its library the writings of some of Washington's medical contemporaries. Best known among them are Benjamin Rush (1745-1813), a surgeon general of military hospitals during the Revolution and a signer of the Declaration of Independence; and Samuel Bard (1742-1821), first professor of the theory and practice of physic at King's College (now Columbia University), who was physician to Washington during his residence in New York as president. John Jones (1729-1791), a surgeon in the Revolutionary Army and first professor of surgery in King's College, was the author of the first medical book by an American writer, a treatise on the care of wounds and fractures, which is included in the exhibit. John Morgan (1735-1789), director general and physician-in-chief of the American Army, 1775-1777, who wrote the first brief for adequate medical education in the United States, and William Currie (1754-1828), an army surgeon who wrote some of the earliest works on epidemiology, are others whose writings are shown.

OHIO

Personal.—Dr. William H. Stroup, Spencer, recently retired as president of the town board of education after forty-two years of continuous service in that capacity.——Dr. John G. Anderson, Fayetteville, has been appointed health officer of Brown County to succeed Dr. William L. Faul, Russellville, who retired from active service.—Dr. William F. Moss, Maineville, was the guest of honor at a dinner, February 6, marking his fiftieth year in the practice of medicine.

Society News.—The Marion Academy of Medicine was addressed, February 3, among others, by Drs. John A. Dodd, Richard T. Morgan, Everett H. Morgan and Harold K. Mouser. The general topic for discussion was shock.——The Miami Valley Hospital, Dayton, has recently established a diabetic clinic, in charge of Drs. Benedict Olch and Thomas P. Sharkey.——Dr. Joseph H. Barach, Pittsburgh, addressed the Mahoning County Medical Society, Youngstown, February 16, on "High Arterial Pressure: Etiology, Classification and Treatment." Dr. John P. Tucker, Cleveland, will speak, March 15, on "Newer Viewpoints in the Treatment of Peptic Ulcer."——Dr. Frank W. Harrah, Columbus, addressed the Knox County Medical Society, Mount Vernon, January 28, on "Preoperative and Postoperative Care of the Prostatic Patient."——Dr. Mark H. Mothersill, Indianapolis, discussed "Recent History in the Treatment of Anemia" at a meeting of the Preble County Medical Society, February 18.——Drs. Harold A. Miller, Maurice E. Hodgdon and William Paul Dodds, of Pittsburgh, conducted a symposium on "Common Obstetrical Difficulties and Treatments" before the Belmont County Medical Society, February 4.

OKLAHOMA

Dr. Sigerist to Lecture.—Dr. Henry E. Sigerist, professor of the history of medicine and director of the Institute of the History of Medicine, University of Leipzig, Germany, will give two addresses in Oklahoma City, February 29, as the guest of the University of Oklahoma School of Medicine and the Oklahoma County Medical Society. His subjects will be "Medicine of the Renaissance" and "Medicine and Humanism."

PENNSYLVANIA

Eyesight Swindlers.—Two men calling themselves "Dr." Harris and "Dr." Sherman are reported to have swindled residents of Reading recently by pretending they were an ophthalmologist and a surgeon from the Wills Eye Hospital, Philadelphia, making examinations and performing so-called operations for cataracts. According to descriptions furnished by his victims, "Dr." Sherman wore a light checked suit and white gold glasses. He weighed about 150 pounds, was about 5 feet 6 inches tall, had a wart or pimple on his left cheek, and drove a light gray automobile with a New York license. "Dr." Harris was described as having a dark complexion, wearing a dark brown mixed suit, weighing about 180 pounds and about 5 feet 5 inches tall.

Society News.—Dr. Theodore O. Elterich, among others, addressed the Pittsburgh Academy of Medicine, February 9, on "Malignant Growths During Childhood."——At the meeting of the Allegheny County Medical Society, Pittsburgh, February 16, Dr. Roy R. Snowden spoke on "Nephrosis: Clinical Aspects and Mechanism of Edema"; Dr. James D. Heard, on "Removal of Foci of Infection: An Appreciation and a Protest," and Dr. John A. Hagemann, on "The Doctor Looks at His Critics."——A symposium on infant feeding was held at the meeting of the Pittsburgh Pediatric Society, February 19, at which the speakers were Drs. Ernest G. Kuhlman, George J. Feldstein and Carl L. Ruder.——Dr. William H. Mayer, Pittsburgh, addressed the Crawford County Medical Society, February 10, on "How the Medical Profession Has Served Humanity in Medical Emergencies."——Dr. Stanley L. Freeman, Wilkes-Barre, addressed the Luzerne County Medical Society, January 6, on appendicitis in infancy and childhood.

Philadelphia

Woman's College Forms Advisory Committee. — The Pennsylvania State Advisory Committee for the Woman's Medical College of Pennsylvania was organized at a luncheon at a meeting, February 13. The formation of this committee will be followed by the organization of similar committees in other states. Arising from these will be a national committee, to be chosen from the state committees, embodying the aspirations of those throughout the country who are interested in education of women in medicine. The Pennsylvania committee was formed to acquaint the people of the state with the immediate objectives of the college and its future ideals as well as of the progress it is making.

Posed as a Physician Seven Years.—Charles Borromeo Smith, who held himself out as a physician for seven years in various cities, was sentenced to three months' imprisonment and fined $100 and costs after pleading guilty, January 25, in the Chester County Court, to a charge of practicing medicine without a license. Smith, who is 31 years old, in 1925, is said to have impersonated a physician of the same name in Uniontown, having obtained a duplicate of the real Dr. Smith's diploma from the University of Maryland by writing authorities there that he had lost his certificate. In a statement to police he said that he had served as a store physician in Chicago, operated a sanatorium in Cleveland, and served as ship surgeon on a steamer plying between New York and the West Indies. He was for a time on the staff of the U. S. Marine Hospital at Ellis Island and even won a commission in the army reserve corps. His last "medical" work was at the Pennhurst state school for the feebleminded near Perkiomenville, Pa., where he had been for only two days when he was arrested.

SOUTH CAROLINA

Bill Introduced. — H. 1483 proposes to require that any poison offered for sale, resembling commonly used foodstuffs, shall be discolored so as to be readily distinguished from any food.

TENNESSEE

Health at Memphis.—Telegraphic reports to the U. S. Department of Commerce from eighty-three cities with a total population of 36 million, for the week ended February 13, indicate that the highest mortality rate (20.8) appeared for Memphis, and the rate for the group of cities as a whole, 11.9. The mortality rate for Memphis for the corresponding week last year was 9.5, and for the group of cities, 14. The annual rate for the eighty-three cities was 12 for the six weeks of 1932, as against a rate of 14.3 for the corresponding period of 1931. Caution should be used in the interpretation of weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits or that they have large Negro populations may tend to increase the death rate.

VIRGINIA

Bill Introduced.—H. TN. 420 proposes to accord liens to hospitals treating persons injured in accidents, on any judgments or settlements obtained by the injured persons by reason of their injuries. H. 186 proposes to create a Board of Barber Examiners and to regulate the practice of barbering.

WEST VIRGINIA

Dr. Crile Gives Lathem Lecture.—Dr. George W. Crile, Cleveland, delivered the second annual Lathem Memorial Lecture of the Medical Review Society of Huntington, January 21, on treatment of exophthalmic goiter. The Lathem Lecture was established in honor of the late Dr. Claude A. Lathem, who died in 1930. The Medical Review Society was formed in 1923 by a group of ten Huntington physicians for informal discussion of medicine and the allied arts and sciences. Members of the Tri-State Medical Society, in session at the time, attended Dr. Crile's lecture.

WISCONSIN

License Revoked.—At a meeting of the Wisconsin State Board of Medical Examiners, January 12, the license of Dr. Robert B. Smiley, Stevens Point, was revoked on a charge of manslaughter.

Evening Clinic for Working Women. — The Wisconsin Medical Women's Society opened a special clinic for working women who cannot afford private medical and dental care, February 8, at Mount Sinai Hospital, Milwaukee, according to newspaper reports. The clinic will be open on Monday evenings as long as there is a need for its service. The patients will receive all kinds of medical treatment except hospital care. The following women physicians of Milwaukee have volunteered their services: Drs. Eleanor Cushing-Lippitt, Elsa Ruth Berger Edelman, Frances Johnson and Gail F. Moxon, and Ruth M. Witcpalek, D.D.S.

County Society Sponsors Graduate Courses.—The educational committee of the Medical Society of Milwaukee County is sponsoring four courses of lectures in Milwaukee for physicians during the winter. A course on diseases of the nervous system and another on diseases of the heart have recently been completed. The third, on surgical diagnosis of the abdomen, began, February 1. The fourth course will be on diagnosis of the chest. These courses are conducted on a group unit plan. After the opening meeting the group splits up into small units, to each of which a local instructor is assigned. Each group then meets at least once a week for three sessions.

GENERAL

New Editor of Mental Hygiene. — Dr. Frankwood E. Williams, New York, editor of *Mental Hygiene* since its establishment in 1917, has retired from that position. He was succeeded by Dr. Clarence M. Hincks, director of the National Committee for Mental Hygiene. Dr. Williams retired from the directorship of the committee in November, 1930, after fourteen years' service (The Journal, Nov. 29, 1930, p. 1680).

Survey of Mental Disorders. — The National Research Council is sponsoring a survey of the present status of mental disorders in the United States, to be financed by a grant from the Carnegie Foundation. Madison Bentley, Ph.D., of the department of psychology at Cornell University, Ithaca, N. Y., has been granted leave of absence for part of the second semester of the present academic year, to conduct this study. As planned the study will attempt, first, to define the present state of the subject and to estimate the influence of each science now in the field, and, secondly, to discover what the underlying sciences have contributed to understanding and control of mental maladjustment and what the promise is for enlarging knowledge from these sources.

Fellowship Awarded by Foundation.—The Herbert Celler Foundation will award within the next few months a fellowship carrying an annuity of $750 for the year beginning July 1. Each candidate must submit with his application a personal record, a list of his publications, if any, an outline of the work he wishes to pursue and suitable recommendations. This information is to be sent to the secretary, Dr. Benjamin Eliasoph, 941 Park Avenue, New York. The Herbert Celler Foundation was organized to perpetuate the memory of Dr. Herbert L. Celler, who, until his death about four years ago, was associate attending physician at Mount Sinai Hospital. The money was obtained by voluntary contributions from lay and medical friends of Dr. Celler, the income from which was to be awarded to a suitable candidate to pursue further study or research either in the United States or abroad.

The income from the fund is usually about $1,000, but in view of the present financial situation, the annuity has been reduced for the time being.

News of Epidemics.—One hundred and twenty-five cases of smallpox were reported in the public schools of Arnolds Park, Iowa, February 4. The schools were closed in an effort to check the epidemic.——Public meetings were banned in a school district near Hamilton, Ohio, because of smallpox. Twenty-eight cases were reported under quarantine and fourteen patients had been released, January 30. Dr. Clifford J. Baldridge, county health commissioner, advised school authorities to order all students to be vaccinated or be excluded from school.——A recent outbreak of diphtheria at St. Joseph's Orphanage, Cincinnati, has been traced to a carrier among the children at the institution. Twelve children had had diphtheria since November.——An epidemic of influenza was reported, February 11, at the Ohio Soldiers' and Sailors' Orphans' Home at Xenia, where 170 of the 700 children were ill. Schools were closed because of influenza epidemics in Sibley, Iowa, and in Avon, Mount Carroll and Galva, Ill., February 4.——An outbreak of scarlet fever caused the closing of schools in Gnadenhutten, Ohio, February 5; 27 out of 400 pupils had the disease.

Bequests and Donations.—The following bequests and donations have recently been announced:

Church Charities Foundation, Brooklyn, $500,000 by the will of Mrs. Albertine C. Aikman for an addition to the foundation's hospital, to be known as the "Aikman Memorial" for incurable patients.

New York Polyclinic Hospital, $10,000 by the will of the late Elmer A. Darling.

Woman's Hospital, Manhattan, $10,000 by the will of the late Dr. J. Riddle Goffe, Bronxville.

Lutheran Hospital, Brooklyn, $2,500 by the will of the late Mrs. Anna Fulling, Tuckahoe.

Beth Israel Hospital, New York, $4,000 by the will of the late Archie M. Levy.

Chillicothe Hospital, Chillicothe, Ohio, $35,000 for a children's ward, by the will of Mrs. Elinor McKell Mayo, Los Angeles.

Wesley Hospital, Marshfield, Ore., $90,000 by the will of John Sherman Gray. The bequest will be deferred for a time but will ultimately be available after certain obligations involving the income have been fulfilled, it is reported.

Knickerbocker and Manhattan Eye and Ear hospitals, New York, $10,000 each under the will of the late Alfretta H. Gardner.

Presbyterian Hospital, New York, will ultimately receive $1,284,278 as the Wallace Fund, under the will of the late Mrs. Helen M. W. Swan.

The New York Academy of Medicine and the Manhattan Eye, Ear and Throat Hospital, $10,000 each under the will of the late James Brentano Clemens.

Presbyterian Hospital, Philadelphia, $20,000 by the will of Mary E. Joralemon, Ardmore, Pa.

Episcopal Hospital, Philadelphia, $5,000 by the will of the late Lillie M. Madeira.

Coatesville Hospital, Chester County Hospital and Homeopathic Hospital of Chester County, all in Pennsylvania, $2,500 each by the will of the late Frank Parke.

Medical Bills in Congress.—*Change of Status:* S. 894 has been favorably reported to the Senate, without amendment, directing the retirement of acting assistant surgeons of the United States navy at the age of 64 years (Senate Report No. 258). S. 1690 has passed the Senate, providing for the care and treatment of members of the National Guard, Organized Reserve Officers' Training Corps, and citizens in military training camps who are injured or contract disease while engaged in military training. S. 2978 has been favorably reported to the Senate, without amendment, providing for the construction and equipment of a hospital on the Blackfeet Indian Reservation in Montana (Senate Report No. 266). H. R. 7518 has been favorably reported to the House, with an amendment, authorizing the President to confer on the governor of the Panama Canal the right to issue and revoke licenses to practice the healing art under regulations to be issued by the governor and providing a penalty for violations of health regulations (House Report No. 530). *Bills Introduced:* Senator Copeland, New York, has submitted a proposed amendment to the appropriation bill for the Treasury and Post Office Departments, authorizing the importation of brandy and other spirituous liquors for medicinal and other nonbeverage purposes. The proposed amendment has the approval of the Treasury Department. S. 3678, by Senator Davis, Pennsylvania, to convert into a diagnostic center the veterans' hospital numbered 49, at Philadelphia. S. 3748, by Senator Connally, Texas, to amend an act entitled "An Act to recognize the high public service rendered by Major Walter Reed and those associated with him in the discovery of the cause and means of transmission of yellow fever," by including Roger P. Ames among those honored by the act. H. R. 9344, by Representative Patterson, Alabama, conferring on the Student Army Training Corps all the benefits of the World War Veterans' Act. H. R. 9488, by Representative Howard, Nebraska, "to reduce existing tariff duties upon table, household, kitchen, and hospital utensils, and hollow and flat ware."

Foreign Letters

LONDON

(From Our Regular Correspondent)

Jan. 23, 1932.

Prenatal "Surgery"

Nature has been said to be a good physician but a bad surgeon. While recovery from disease depends on her efforts, nature fails in such surgical emergencies as gastro-intestinal perforations, severe hemorrhage or the displacements of fractures and dislocations. In a series of lectures on "Malformations of the Human Body Considered from a New Point of View," delivered at the Royal College of Surgeons, Sir Arthur Keith has shown that in embryonic development nature performs operations in many respects comparable with those of the surgeon, but surpassing in delicacy and perfection anything to which he can attain. The greatest of these developmental operations is the enclosure of the entire nervous system. The brain and spinal cord are only a transformed dorsal strip of skin of the embryo. It is remarkable that, although the brain is needed only after birth, it is the first of all bodily structures to be differentiated, appearing even before the heart has become functional and when the embryo is less than one twenty-fifth of an inch long. At this early period the skin of the back is being modified to form nerve plates. In the fourth week the margins of the nerve plates begin to rise, so that first a trough is formed and then a tube. The folded margins of the tube come into contact first in the neck. Edge becomes healed to edge, exactly as they do in a wound brought into apposition; only, the operation is more perfect, for no scar is left. From the neck the process of union spreads forward and backward; in less than a week it has reached the forehead and in less than two weeks the lower region of the trunk. In less than two weeks the whole central nervous system becomes submerged in an orderly manner and the line of submergence is obliterated by a covering of skin. If the operation fails completely, the child is born with the brain and cord exposed. More frequently the failure is partial and spina bifida results. It has been shown experimentally in the fish and the frog that spina bifida can be produced by subjecting the neural plates to injurious conditions—just as union is preventable in a wound.

The formation of the eye entails two operations of developmental surgery. Part of the embryonic tube grows out sideways as a pocket to form the retina. The closed end of this comes against the skin of the head, and the area touched begins to grow inward to form a pocket which abuts against the nerve pocket or outgrowth. Both pockets become shut off—the one from the embryonic skin to form the lens of the eye, the other from the neural tube to form the retina. So perfect is the healing at the point where the lens pocket becomes detached from the skin that no trace is left. Indeed, that part of the skin becomes the cornea. When the first stages of eye formation are completed, one side of the eyeball still remains open. This fissure is closed by a process similar to that which unites the two sides of a wound. If the closure is imperfect, coloboma results. The remarkable discovery has been made that the brain pocket, which grows out to form the retina, is a "master tissue." If it is prevented from coming into contact with the skin, no lens is formed, but if it is detached and embedded beneath any area of skin of the embryo, the overlying skin at once begins to form a pocket and lens. This almost magic power is due to a growth-controlling substance formed within the neural pocket. A similar influence is seen in the formation of galls on plants by insect larvae. Recently Professor Spemann of Freiburg discovered that a certain small area of tissue on the back of the embryo has even more wonderful morphogenic power. If a graft is taken from it and implanted in the side of the embryo, the surrounding tissue begins to form nerve plates and a new embryo. The key to some of nature's secret surgical processes, carried out in the routine building of the embryonic body, will be found in morphogenic substances. In the matter of repair, nature is still the master surgeon.

How have the elaborate operations described come into being? In the lowest invertebrates the nervous system is still essentially part of the skin. The elaborate growth and extension of the system in vertebrates became possible only when provision was made for the earlier stages of development being gone through in a position of shelter and nurture, as occurred in the elaboration of intra-uterine life.

Decline of Birth and Death Rates

The Health Section of the League of Nations has published a critical survey of the increase of population in the European countries, Australia, New Zealand and Japan, which constitute one third of the population of the globe. This shows a decline in both the birth and death rates. The fall in the birth rate has varied greatly in different countries. In Germany it is forty times that in Portugal and five times that in France. Japan is the only country in the group studied that has an increase of birth rate. France, which for a long time had the lowest birth rate, has now one higher than England, Austria, Sweden, Norway, Switzerland and Estonia. The decline in the death rate shows less variation. The greatest reductions are in Russia, Spain, Germany, Hungary and Estonia. England, Norway, Sweden, Denmark, Switzerland, Belgium and New Zealand show only a slight reduction to offset the sharp decline in their birth rates. This is because the death rate in these countries had already reached a low level. Since the beginning of the twentieth century the maximum decline in birth rate has been 47 per cent and in death rate 39 per cent, both figures being reached in Germany. Out of twenty-nine countries covered by the survey nine have had a decline of birth rate of more than one third and eight one of from 35 to 23 per cent. The average net increase of population in recent years shows no general diminution in comparison with the years 1900 and 1905. But there is for most countries some diminution. For England, Germany, Norway, Sweden and Belgium the natural increase in recent years is only one fourth of that of twenty-five years ago. For Austria, France and Switzerland there is a diminution of more than 50 per cent. On the other hand, Japan, Spain, Portugal, Ireland and Russia have had since 1928 a greater natural increase than at the beginning of the century. In the year 1928 Europe had an increase of 3 millions, without counting the soviet republics, which appear to have had an increase of more than 2,800,000. Poland, Germany and Italy had an annual natural increase of more than 400,000. Rumania, Spain and England come next with a natural increase of from 200,000 to 300,000. Among the extra-European countries the United States had an increase of 870,000 and Japan of 900,000. The continued fall in the birth and death rates has brought about important changes in the structure of population. The proportion of elderly people is greater and of younger smaller. These changes will in turn bring a rise in the general death rate and a further decline in the birth rate. In particular, the reduced generation born during the war will from 1935 to 1945 have an increasingly depressing effect on the birth rate.

The Danger of High Mountain Climbing

In regard to proposed high climbing in the Himalayas, Sir Leonard Hill, F.R.S., calls attention in the *Times* to careful research work carried out by Dr. Argyll Campbell while Sir Leonard was in charge of the department of applied physiology at the National Institute for Medical Research. Dr. Campbell kept more than 100 mammals of various kinds in an atmosphere equal to that at the top of Mount Everest. He found that not only did no acclimatization take place but there was progressive deterioration, which accompanied degenerative changes in the cells of the heart, liver and kidneys, the result of insufficient oxygen. Few of the animals survived for eight days, and the breathing of oxygen for short periods did not help. Dr. Campbell found that the degenerative changes began at what corresponded to altitudes above 20,000 feet. In this connection it is noteworthy that natives do not take their flocks above 18,000 feet. None of the famous climbers have spent more than ten days at great altitudes, such as 25,000 feet, and a significant lessening of efficiency has been reported: those who tried to reach the top of Everest lost their lives. Sir Leonard Hill points out that want of sufficient oxygen lessens the power of judgment. The power of any individual climber to resist this want cannot be tested by a short exposure to lessened atmospheric pressure. The advice of Sir Leonard is that climbers should aim at one or two of their party, who prove to be the most resistant, reaching the top as quickly as possible after leaving the base camp placed below 20,000 feet, before serious degeneration of the heart has taken place.

Decrease in the Incidence of Syphilis

The annual report of the British Social Hygiene Council (formerly the National Council for Combating Venereal Diseases) gives a survey of the venereal problem in this country since the inception of the government scheme fifteen years ago by which local authorities were required to provide the free diagnosis and treatment of venereal disease. The returns from the treatment centers, which deal with the great majority of cases, show that in the fifteen years new infections with syphilis have fallen by 50 per cent, a result attained by no other country except Sweden, where the teaching of social hygiene is compulsory. The evidence from the centers is supported by the statistics from the army and the air force. In the army the incidence of syphilis per 10,000 has fallen from 9.8 in 1921 to 2.1 in 1929 and in the air force from 4.1 to 0.8. In the army, regular instruction is given to all officers and men on the medical aspect of the problem. Further evidence of the decline of syphilis is the fall of the rate per thousand births of deaths of infants certified as due to syphilis from 1.34 in 1912 to 0.64 in 1929. Thus the bringing of the infected under treatment at the free centers provided by the state, as a means of preventing the spread of syphilis, has proved sound. But the council believes that a certain proportion of syphilitic women and children are escaping the operation of the scheme. The prevention of congenital syphilis by the detection and treatment of every case in prospective mothers appears to be well worth doing.

The efforts to cope with gonorrhea have been less successful. The number of cases treated at the centers shows a slight increase, but this is held to be due to a greater use of the centers rather than to an increase of infections. But the low ratio of cases of gonorrhea treated at the centers to cases of syphilis in women (1.18 to 1) suggests that a large proportion of infected women remain untreated. Far too many patients reach the centers after being months or even years under the care of physicians who have failed to recognize the disease. Among them are many suffering from arthritis, which should always stimulate an investigation into the question of gonorrhea. An important part of the reduction of syphilis is due to the action of arsphenamine in quickly making the patient noninfectious. It is said that the incidence of gonorrhea has not been affected because there is no such specific. But the council holds that if women came for immediate treatment more freely the incidence of gonorrhea would decline. It insists that public education is essential for the effective carrying out of the voluntary system of free treatment. This is proved by the fact that an increase of patients has followed lectures on venereal disease and the showing of films. The small proportion of women with gonorrhea who seek treatment shows the great need for educational measures with regard to this disease.

PARIS

(From Our Regular Correspondent)

Jan. 13, 1932.

The Hematopoietic Potency of Carotene

Carotene has been the subject, in France, of important researches; among others, those of Maurice Javillier and of Mlle. Enrique, who have shown that carotene is capable of reestablishing the growth of rats subjected to a diet defective in vitamin A. Nevertheless, it is certain that carotene and vitamin A are different substances that present many distinctly different reactions. But the research of T. Moore and of S. Captain, on rats and pullets, has established that carotene ingested by these animals is transformed in their liver into vitamin A, of which a reserve supply is accumulated. Prof. Léon Binet and Mr. V. Strumza have recently discovered an interesting property of carotene that (although their experiments thus far have been exclusively on laboratory animals) appears to indicate that this substance performs an important rôle in therapeutics. It exerts a remarkable influence on hematopoiesis. Several lots of dogs were made anemic by venesection. In one lot, the restoration of the erythrocytes and of the hemoglobin was allowed to take place spontaneously, while, every day, the progress of the restoration was checked by an examination of the blood. In another lot, carotene was administered to the anemic animals, and it was found that in the latter the hemoglobin was restored more rapidly to normal than in the controls. At the same time the number of erythrocytes increased in the same proportion. To be sure, these experiments had to do with only one form of anemia, and it remains to be determined in man what the effects of this treatment would be in pernicious anemia and in anemia due to hypochlorhydria. One must not, however, overlook the fact that in animals the reserve depot of vitamin A is found in the liver. Mouriquand has already demonstrated that a deficiency of vitamin A accompanies a marked anemia. The question may therefore be raised, though possibly hazardous, as to whether the secret of the effects of the ingestion of calf's liver in anemia does not lie in the fact that the liver is the depository for vitamin A.

Measurement of Quantity of Radium Rays Employed in Treatment

A valuable device invented by Dr. Lucien Mallet has been introduced for the measurement of the quantity of gamma rays of radium used in a radium therapeutic treatment and presented to the Academy of Sciences. It consists of two independent parts: a small ionization chamber, which is introduced into the cavity or the tissues to be treated, and an electrometer capable of measuring the minutest electrotonic charges. After the operation, the ionization chamber is attached to the electrometer, which indicates accurately the loss of load represented by the quantity of gamma rays dispensed.

Medicolegal Value of Dust Found in Watches

Dr. Severin Sicard of Marseilles, to whom medicine is already indebted for the discovery of a sure test of death (the injection of a solution of fluorescein), has just published an article on the medicolegal value of the microscopic examination of the dust found within watch cases. Watch cases always contain more or less dust, which finds entrance through the various openings in the case—through the spaces about the hinges, through the opening for the winding stem, and around the margin of the watch crystal. Dust penetrates by aspiration when the watch, carried at body temperature in the vest pocket, has first driven out a part of the air that it contains and that the heat has expanded and then, having returned to a normal temperature, draws in the air and the dust that it contains. Mr. Sicard confirmed these statements by a few simple experiments. He covered a watch with flour and placed it near a heated surface. Later he inspected the watch and found no trace of flour within it; but, on performing the experiment a little differently, and, before opening the watch, leaving it for a time exposed to the outside temperature, he always found flour within it. An examination of the dust found in watches may supply useful information as to the trade or profession and the usual occupations of the subject when there are found certain substances in quantities exceeding by far those found in ordinary dust, or when the substances are absolutely characteristic in themselves. Flour is found in the watches of bakers, coal dust in the watches of miners and of stokers, baked clay in the watches of brickmakers, iron and copper on metal workers, bits of vegetable peelings on workmen handling such products in a dry state, particles of hair on hair-dressers, fragments of raw wool on wool washers, and plaster and cement on masons. The same substances, if a careful search is made, will be found in the handles of pocket-knives and in the tubes of small keys. Watches worn on the wrist by women or kept in their handbags contain rice powder, and one finds resin dust in the watches of violinists. Such information may be of great aid to the police in their researches. A watch found on a person accused of having stolen it was certainly stolen if it is found to contain flour or coal dust, whereas the accused person has never been either a baker or a coal miner. Dr. Severin Sicard had already previously made similar observations in studying microscopically the dust that becomes mixed with the ear wax in the exterior auditory meatus.

BERLIN

(From Our Regular Correspondent)

Jan. 11, 1932.

Possible Injury to Germ Cells by Roentgen Rays

A recent letter touched on the question of possible injury to germ cells by roentgen rays (The Journal, Nov. 21, 1931, p. 1552). On account of its great importance, this problem has occupied of late, in Germany, many persons engaged in that line of work. For that reason, the Berlin Gesellschaft für Geburtshilfe und Gynäkologie devoted recently a session to a discussion on temporary "castration" by roentgen rays, which was participated in by many prominent gynecologists, researchers on heredity and radiologic experts. The opening paper was presented by Privatdozent von Schubert, on the staff of the Frauenklinik der Charité, who called attention to the difficulties of the method. Temporary castration is unsuccessful in 5 per cent of the cases; on the other hand, supposedly temporary castration will, in a like percentage of cases, prove permanent, which is a serious matter for young women and may give rise to criminal or civil suits. The uncertainty of the method is due chiefly to the two facts that one does not know exactly what roentgen dosage it is necessary to employ and that women of a given age do not all react in the same manner to a given dosage. Furthermore, there are other modes of treatment, so that in the Frauenklinik der Charité this method is not employed.

The physical and technical problems were discussed by the Berlin radiologist Professor Friedrich and the Erlangen gynecologist Professor Wintz, who contends that the strength of the roentgen dosage can be determined within 5 to 10 per cent. Professor Martius of Göttingen and Prof. Eugen Fischer of Berlin-Dahlem discussed the questions pertaining to possible injury of the germ cells by irradiation of the ovaries. That the modifications in the germ cells brought about by roentgen rays may give rise to mutation has been shown by the experiments on flies (Drosophila). Conclusions with regard to man must of course be drawn with great caution; but it is certain that we do not know as yet what dosage applied to man may be considered harmless. While it is true that the conditions in the ovary of Drosophila are different from those obtaining in man, and also that mature ova are more sensitive to roentgen rays than immature ova, even the latter may be killed and a permanent castration be brought about. Professor Nürnberger, gynecologist in Halle, does not regard the danger as very great, and emphasized that no evidence is available to show that roentgen mutations occur in man as the result of roentgen irradiations. It is clear from this discussion that, in any event, there is no assurance that an injury of the germ cell by roentgen rays may not occur, and the indications for the application of this method must hence be drawn with great reserve.

New University Clinics in Freiburg

In spite of the economic depression, an endeavor is being made to complete buildings that have been begun, if the money for them has been appropriated and is available. What retrenchments have become necessary in the field of science was explained in previous letters. A short time ago, the newly erected medical and surgical clinics of the University of Freiburg, Baden, were dedicated. Their construction and hygienic arrangements are of the most modern type, so that it is doubtful whether they are excelled by any similar institutions in Germany or elsewhere. The two new university clinics have about 700 sick-beds. It is planned to erect later in a similar style a new ear, nose and throat clinic, which will complete the so-called Klinikenring. The funds for the two buildings erected (about $4,000,000) were furnished in part (two fifths) by the city of Freiburg and in part by the government of Baden (three fifths). It is estimated that the buildings to be erected will require the expenditure of nearly $2,000,000 more.

The Three Hundred and Fiftieth Anniversary of the University of Würzburg

On Jan. 2, 1932, the University of Würzburg celebrated its three hundred and fiftieth anniversary. The university was established in 1402 but was closed in 1413 and was not reopened until Jan. 2, 1582. In contrast with most other schools of higher learning that were the outgrowth of the Reformation, this university was designed by the bishop-prince as a stronghold of catholicism. The university retained its ecclesiastical character until the end of the eighteenth century. When, however, in 1803, it came under the control of Bavaria, it took on a more liberal character. Of the more eminent members of the faculty of medicine in modern times may be mentioned Virchow, Rokitansky and Roentgen. The faculty of medicine achieved, however, a period of greatness about fifty years ago, when Kolliker, C. Gerhardt, E. von Bergmann, Szanzoni and Michel formed a brilliant galaxy. A portion of the university is still housed in the old building that dates back to 1582-1591, a beautiful Renaissance structure with a church whose magnificent tower serves as an observatory. For the clinics, new buildings have been erected in comparatively recent times; but the old Julius Hospital, well known to many German and foreign students since their university days, is still in use.

Research on Vitamin B

The year 1931 stands out above all others in the history of biochemical research. In the course of a few months, in one of the most difficult fields, the chemistry of vitamins, remarkable advances were made. Three important vitamins have been obtained in a crystallized and absolutely pure state, vitamin A having been secured by Professors Euler and Karrer; vitamin C by the young Norwegian Rygh, and vitamin D by Prof. Adolf Windaus of Göttingen, working in collaboration with his pupils. Following these discoveries, the latest event is the exhibition, in a pure state, of that portion of vitamin B that is known as B_1, the factor that is effective against beriberi.

Intensive research has been made on this vitamin since 1926, when Jansen and Donath in the Netherlands succeeded in isolating from rice bran a crystallized substance active against a beriberi-like disease of pigeons. The Netherlanders regarded the substance as a nitrogen-containing base—apparently an alkoloid. Several attempts at verification yielded fluctuating results with reference to the activity of the crystals, which awakened some doubt as to their purity. Further doubt was injected into the matter by the fact that these crystals could not be isolated from yeast, known to be rich in vitamin B. The Göttingen chemist Prof. Adolf Windaus, and Prof. Fritz Laquer of the I. G. Farbenindustrie, in collaboration with other scientists, have improved so markedly the method of Jansen and Donath that they have now obtained from yeast a preparation of the vitamin that can be regarded as uniform and pure. Jansen's assumption that the newly discovered substance is a nitrogen base was confirmed. It contains, however—strange to say—also sulphur. Its potency is about three times greater than that of the best preparation heretofore known. In experiments on pigeons it was found that about 0.0024 mg. suffices for the prevention of the severe convulsions that are due to the lack of vitamin B_1.

VIENNA

(From Our Regular Correspondent)

Jan. 8, 1932.

Regulations Concerning Use of the Term "Specialist"

During the deliberations of the Vienna chamber of physicians, last year, Dr. Sonnenfeld presented a communication in which he explained the present regulations concerning the assumption by physicians in Austria of the title of "specialist." At present there are no legal regulations bearing on the right to assume and use the title of specialist in the republic of Austria. Only with regard to the admission of physicians to the *krankenkassen* having free choice of physician has any regulation of the specialist problem been attempted. As affecting the contracts between the organization of the medical profession and the *krankenkassen*, the following regulation obtains: "Only such physicians who, following a special course of training, confine their practice to a special branch of medicine are entitled, in principle, to announce themselves as specialists. Such physicians are recognized by the economic organization of physicians as specialists and are announced to the *krankenkassen* expressly as specialists for a certain branch of medicine. They are not permitted to serve, at the same time, as general practitioners." Every specialist must be a member of the Verband der Fachärzte (league of specialists) in Vienna if he wishes to practice in Vienna. In the provinces outside Vienna the title "specialist" is approved, by the chamber of physicians having jurisdiction, only after the applicant has furnished evidence of his special training. The special training required has been standardized by the Verband der Fachärzte in the following manner: A specialist can practice in only one of the following fields: surgery, dermatology, gynecology (including obstetrics), internal medicine, respiratory organs, neurology and psychiatry, ophthalmology, orthopedics, otorhinolaryngology, pediatrics, physical therapy, roentgenology, urology and medical laboratories, or a total of fourteen specialties. That holds for Vienna; in the provinces the three specialties orthopedics, urology and medical laboratories drop out. In case of need, the chamber of physicians has the right to combine two or more specialties (internal medicine and pediatrics, and respiratory organs, or ophthalmology and otorhinolaryngology, or surgery with gynecology and radiology). Every specialist in Vienna or in the provinces must first request admission to the narrower group and furnish proof that he has fulfilled the conditions for admission as specialist, which, for the nonoperative branches, are at least four years of training in a clinic or hospital service dealing with his specialty, and, for the operative specialties, five years of training and experience in such an institution. The applicant must also furnish proof that, for at least two years of the four to five year period, he served as assistant to the department head and was thus compelled to work more or less independently. The applicant is not recognized by the Verband der Fachärzte until the group of specialists concerned has admitted him; he can then enter into contracts with the health insurance societies (*krankenkassen*). But in case a physician does not seek service with the *krankenkassen*, he can select any specialty he desires, specialize in that branch of medicine, and announce himself as a specialist in that branch; and, if he desires, he can practice also general medicine, which the members of the specialist groups are strictly prohibited from doing, as has already been mentioned. But he cannot be admitted to membership in the Verband der Fachärzte. It should be noted, however, that the general public has become so used to regard and patronize only the members of the Verband der Fachärzte as specialists that the other specialists receive little consideration. The only specialist title that is protected by law in Austria is that of *zahnarzt* (physician-dentist), since the study of dentistry is regulated by law and only doctors of general medicine who devote themselves exclusively to dentistry may call themselves *zahnarzt*, other persons ("dentisten," technicians, and others) not being permitted to refer to themselves as *zahnärzte*. In Vienna there are something over 4,000 registered physicians, for a population of 1,810,000. Of that number, 800 are hospital physicians, 1,220 specialists, 650 physician-dentists (*zahnärzte*), and the remainder (about 1,400) general practitioners, 290 of whom are women. Among the specialists and physician-dentists there are 110 women. In Austria, outside Vienna, there are about 2,600 registered physicians, with about 600 specialists and physician-dentists.

Poisoning from Illuminating Gas

The use of gas for the lighting of streets in the larger towns of Europe goes back about 100 years, having been employed in Vienna for the first time in 1827. It is only during the past fifty years that public buildings and apartments have used gas, to any great extent, for illuminating purposes. With the beginning of this century gas began to be widely used for heating and cooking purposes, and now it is used quite generally even in small households. As a result, the opportunities for poisoning have increased. In 1914 there were 152 such cases of poisoning in Vienna, with 12 deaths; in 1930 the number of cases of poisoning rose to 1,360, with 446 deaths. A frequent cause of such accidents is the lack of knowledge of the use of gas-burning apparatus. In recent years, more than 40 per cent of all attempted and successful suicides in Vienna were accomplished with illuminating gas. The poisonous effect of the gas is due chiefly to the carbon monoxide it contains, the percentage of which varies considerably, dependent on the raw material used and the mode of production. The Austrian gas works produce illuminating gas with from 18 to 37 per cent of carbon monoxide; in Vienna the gas contains 16 per cent of carbon monoxide. There are no statistics of poisoning due to illuminating gas in Austria in earlier decades, so that it must have been a rare occurrence. About five years ago Dr. Damianos, who publishes this report in the *Mitteilungen des Oesterreichischen Volksgesundheitsamtes*, collected the first accurate data, with the collaboration of the police department in Vienna and the municipal gas works. It is interesting to note that in 1883 on three occasions municipal aid was given in connection with fatal gas poisoning. In 1892 there were 8 deaths and 18 first-aid treatments, whereas in 1930 in Vienna there were 380 suicides, 66 fatal accidents and 914 nonfatal accidents and attempts at suicide—an enormous increase in forty-seven years. The statistics collected by Dr. Damianos present the following picture: Cases of poisoning by illuminating gas increased slowly from 1883 to 1907; then from 1908 to 1914 there was a more rapid increase, and after the war the figures jumped up rapidly: 1890, 11 cases; 1900, 53; 1910, 149; and in 1928, 430 fatal and 1,013 nonfatal cases. Since 1928 the figures have not changed much. Furthermore, the statistics show that the number of suicides with gas exceeded by far the number of accidents (if one considers records of the last few years): 397-33, 398-77 and 380-66. It will be seen that about 40 per cent of all cases of poisoning with gas are immediately fatal and of the nonfatal cases more than 60 per cent were severe cases necessitating hospitalization of the patients. From 1890 to 1899, only 1 per cent of all suicides in Vienna were accomplished by means of gas; in 1928, however, the percentage was 40; in 1929, 41; in 1930, 45. If one compares the number of suicides and accidents by gas in Vienna with the number so occurring in the remainder of Austria, one gets the following figures: In 1913 there were 211,825 gas consumers in Vienna as against 35,975 in Austria; in 1928, however, the ratio was 463,220 to 69,775; in 1929 it was 468,033 to 72,398. In 1928 there were 397 suicides in Vienna and 15 in Austria, and a total of 1,443 gas accidents in Vienna as against 50 in the remainder of Austria. In 1929 there were 398 suicides in Vienna and 29 in the provinces, a total of 1,441 gas accidents as against 84 in the rest of Austria. It appears that the number of gas accidents has now been stabilized and that before long one may count on a decline.

Death of Prof. Benjamin Lipschütz

The death of Prof. Benjamin Lipschütz, the well known investigator and dermatologist, at the age of 53, has been announced. Professor Lipschütz devoted his attention chiefly to the biologic problems of dermatology and venerology. Various types of disease that he studied in detail and described bear his name; for example, ulcus vulvae acutum Lipschütz, erythema migrans Lipschütz, epithelioma contagiosum. His most important field, however, comprised the so-called inclusion diseases. In his "Manual of the Protozoa," he described the Chlamydozoa theory, molluscum contagiosum, fowl plague and the strongyloplasmata. Furthermore, he studied and published important articles on the cell structure of malignant growths. In 1915 he was made privatdozent, and, only a short time before his early death, he received the title of university professor, an honor that he, in his modesty, had never hoped to attain.

BELGIUM

(From Our Regular Correspondent)

Jan. 5, 1932.

Labor Contract Affecting the Natives of the Congo

A new order has gone into effect in the Belgian Congo region, some features of which, pertaining to the hygiene of labor, deserve to be noted. The care of the health of workmen, porters and paddlers, employed in the commercial, industrial and agricultural enterprises, is placed under the control of a government physician, designated by the governor of the province as inspector of health of workmen, and of accepted physicians commissioned by him as assistant inspectors with only local authority. The inspection of the health of workmen has the special mission of supervising the regulations pertaining to the health of employees and of prescribing such measures as are needed to safeguard the lives and health of workmen employed in enterprises that are of a markedly dangerous and unhealthful character. It functions in collaboration with the inspection service of industry and commerce, communicates to the latter the sanitary measures that it prescribes, and gives it all the necessary technical instruction. If the measures prescribed by the inspection of health appear to the employer to be ineffective or burdensome, he may appeal to the governor of the province, whose decision, and the basis therefor, are forwarded to the complainant and to the author of the measure that was the object of the inquiry. No one may recruit or employ a native who has not been shown to be physically adapted to the work in question, nor may employees be required to do work for which they have not been shown to be fitted. The examination as to physical aptitude for a given type of work is made by a government physician or an approved physician.

Every employer and labor agent must provide gratuitously whatever medical care is needed by employees and recruits, and, in order properly to meet this obligation: 1. The employer must, irrespective of the number of employees, place at the disposal of the head of the camp a first-aid kit containing the drugs and dressings in current use, in a perfect state of preservation, ready for immediate use and amply sufficient for the purpose intended, and he must have a portable medicine chest if he employs porters or paddlers. 2. When the number of workmen exceeds 100 men, employed in the same place or distributed within a radius of 15 kilometers, he must employ a native man nurse, and additional men nurses at the rate of one nurse for each 200 employees; he must employ a white nurse if the number of workmen reaches 500 men, or one white nurse for each five native nurses employed if the workmen are scattered; he must entrust the medical service to a physician if the number of workmen reaches 1,000. 3. In every camp or settlement comprising more than 100 workmen, he must provide a special building to be used as an infirmary or hospital, if there is no hospital within a radius of 25 kilometers of the enterprise; the infirmary must have a number of beds equal to 5 per cent of the number of workmen, and there must be medical assistants provided, who, if they are not under the direction of a graduate physician, are placed in charge of government physicians. 4. The infirmary or hospital must keep a daily record of the number of patients, the nature of the disease, the date of its onset and the date of the recovery, and if more than 100 workmen are employed, an abstract of the record must be sent each month to the medical inspector of health.

Belgian Society for the Prevention of Blindness

The first session of the Association belge de prophylaxie de la cécité, the object of which is to combat the various causes of blindness, was held recently. The program outlined by the new society is identical with that of the Association internationale de prophylaxie de la cécité, an organization, with headquarters in Paris, which centralizes the efforts of the various chapters that exist in nearly all parts of the country and that has attained considerable development in foreign countries, notably the United States and England. The new society plans to work in collaboration with the existing societies that deal with the care of the eyes as a secondary feature of their program (Croix-Rouge de Belgique, Croix-Rouge du Congo, Ligue contre le péril vénérien, Ligue contre la tuberculose, Oeuvre nationale de l'enfance, Ligue d'hygiène mentale, Ecole centrale du service social). It will give its whole attention to the crusade against occupational eye accidents and will keep in touch not only with government but also with private industrial undertakings, and with organizations engaged in the prevention of occupational accidents. Finally, it will act on its own account by the diffusion of tracts and advice on health matters and by the organization of lectures. Professor Van Duyse, member of the Academy of Medicine and professor of the University of Ghent, is the organizer of this new society, which numbers among the members of its organizing committee many high officials and many leading ophthalmologists.

Reorganization of Institutes of Physical Education

Experience has shown the necessity of modifying the work and studies of the higher institutes of physical education. Likewise, a higher institute of physical education has been organized as a department of the faculty of medicine at each of the two government universities, located at Ghent and at Liége, respectively. The institute confers the degrees of licentiate of physical education, agrégé of physical education, and doctor of physical education.

Life Insurance for the Medical Profession

At the congress of the Fédération médicale belge, Dr. Peeters took up the subject of life insurance and pensions for the medical profession. Three matters were brought to the attention of his hearers: (1) the significance of life insurance in general, (2) mutual life insurance as a system, and (3) the appointment of a managing directorship. As regards mutual life insurance, experience has shown the incompetence of medical men in financial matters, for which reason mutual life insurance is contraindicated for physicians. There is a natural incompatibility between "business management" and the "medical temperament." The appointment of a managing directorship consists in entrusting to a competent and responsible organization what, owing to medical incompetence and incompatibility, medical men have never been able to compass. A managing body composed of members of the medical profession should be replaced by a managing directorship that has proved its ability in matters of life insurance. Following the presentation of this report, the congress decided (1) to appoint a committee that would unite, under the egis of the Fédération médicale belge, all the scattered mutual aid societies, in order that they may attain a maximum of efficiency, and (2) to get in touch as soon as possible with a life insurance company, or with a firm of actuaries, or with whatever organization appears proper for the realization of the purpose, with a view to organizing an insurance and pension system for physicians.

ITALY

(From Our Regular Correspondent)

Dec. 31, 1931.

National Congress of Surgery

The Società italiana di chirurgia held its thirty-eighth national congress in Bari, under the chairmanship of Professor Righetti. The official speakers on the topic "Associated Syndromes of the Right Half of the Abdomen" were Prof. Nicola Leotta of Bari and Dr. Giulio Vita of Palermo. Leotta divided the associated syndromes of the right half of the abdomen into four groups: (1) right abdominal syndrome; (2) right abdominal syndrome with cholecystitis; (3) right abdominal syndrome with gastric ulcer; (4) right abdominal syndrome with cholecystitis and gastric or duodenal ulcer. The right abdominal syndrome comprises changes in the appendix, and the adjacent intestine and lesions of the omentum and the perivisceral structures. One must assume the constant existence of an appendicitis, active or inactive. The foregoing changes are the result of a chronic peritoneal infective process.

The peritoneal lesions are associated with a simple chronic peritonitis of digestive origin, in which appendicitis plays a big part. The complex symptomatology results from three principal factors; namely, the peritoneal inflammatory factor, the mechanical factor (retraction of the meso-appendix, adhesions) and the nervous factor. There are digestive disturbances, spontaneous pains, chronic intoxication, and symptoms due to the lesions of the internal organs. The right abdominal syndrome with cholecystitis differs from the preceding owing to the coexistence of cholecystitis. This is manifested by classic biliary colic or by less intense attacks of pain. The right abdominal syndrome with ulcer is associated with the presence of a gastric or duodenal ulcer. These are of infectious origin, due to ascending infection.

Dr. Giulio Vita, who discussed the radiologic part of the topic, described the technic employed in the study of the associated syndromes of the right half of the abdomen. In the stomach are observed changes in form due to retraction of the lesser omentum, often accompanied by atonia and constipation.

The antrum of the pylorus may undergo traction, from which marked shifting to the right results. The duodenum may present retropositions of the bulb, deformations of the first and second portions, and/or spasmodic or paretic conditions of the ampulla of Vater. For the diagnosis of adhesions of the colon the speaker suggests the adoption of his method of studying the behavior and the changes of form that the colon undergoes before and after the ingestion of a drastic purgative.

Pozzi of Milan spoke on the syndrome of chronic appendicitis in tuberculous mesenteric glands. Surgical intervention in these cases alone will clarify the diagnosis and appendicectomy will prevent secondary infections of the glands.

Dr. Guido pointed out the value of the Meltzer-Lyon test in the associated syndromes of the right half of the abdomen; it represents a valuable aid in the diagnosis of lesions of the biliary passages.

ACUTE AND CHRONIC PANCREATITIS

The second topic, "Acute and Chronic Pancreatitis," was treated in collaboration with the Società di medicina interna. Prof. Antonio Gasbarrini of Bologna pointed out that the inflammatory processes that affect the pancreas cause reactions not only in the parenchymal tissue but also in the supporting tissue; to these may be added, as characteristic factors, cellular necrosis, hemorrhages and steatonecrosis. The general clinical symptoms of these lesions furnish few factors that aid directly in the diagnosis. Diagnostic importance attaches, however, to the pain, the discovery of tumors at the site of the pancreas, and functional disorders. The digestive tests, particularly the amount of fecal fats, according to Zoia, acquire importance for the diagnosis of chronic pancreatitis, while in the acute (necrotic) forms an increase in the diastase content of the blood and the urine appears to be especially significant.

The study of the lipase in the blood serum does not furnish a secure basis of judgment, and the same is true, as regards chronic pancreatitis, of the amount of fecal ferments, of which only trypsin apparently furnishes presumptive criteria worthy of consideration. Acute pancreatitis includes a necrotic form, a suppurative form and a gangrenous form. The primary factor in the characteristic succession of pathologic symptoms appears to lie in the cellular necrosis, which results in the liberation of a ferment that is a potent stimulus to the production of trypsinogen. The edema, the hemorrhages, the peritoneal reactions, and the fatal toxic factors are secondary to the local and general action of the trypsin. Chronic pancreatitis, more frequently than acute, accompanies diseases of the surrounding organs, especially disorders of the biliary passages and of the duodenum. The characteristic lesions consist chiefly of hyperplasia and sclerosis of the supporting tissues, and atrophy of the glandular parenchyma. The insular tissue is often spared but is sometimes hypertrophic. The clinical symptoms consist in phenomena of compression of such nearby organs as the common bile duct and the duodenum, and, often, in the presence of a palpable tumor. There is sometimes little pain. The prognosis is in direct relation to the possibility of direct surgical intervention for the removal of the original focus of infection.

The surgical part of the topic was presented by Professor Tusini of the University of Genoa. The etiologic factors of acute necrosis of the pancreas, he stated, are all capable of producing within the gland activations of the pancreatic ferment. The disease begins suddenly with grave shock, acute epigastric pain (especially on the left side), and persistent vomiting of bile. The temperature is normal or nearly so; there are intense cyanosis and dyspnea without demonstrable pulmonary and cardiac changes. There is evident relationship between the state of collapse and the nature of the pulse. Operative intervention is indicated, but it is necessary to select the opportune moment (more or less early). Chronic pancreatitis is rather frequent, especially with biliary complications. The symptomatology furnishes no pathognomonic signs, and hence the clinical diagnosis is extremely difficult. It is important to proceed systematically with an accurate exploration of the pancreas, and it may be desirable to resort to biopsy. The treatment varies. If there is icterus, treatment consists in biliary drainage, which relieves the retention of the bile and often cures, of itself, the pancreatitis. Biliary drainage may be applied either by drawing off the bile or by diverting it within by means of various anastomosis procedures, according to the needs. Cholecystostomy often heals, with a minimum risk, the inflammatory lesions of the pancreas, making it possible to survey the evolution of rebellious forms and to apply, in the second stage, if necessary, an appropriate treatment. Depending on associated lesions caused directly by the pancreatitis in adjacent organs, corresponding operations may be introduced, for the most part on the stomach and on the duodenum.

Dr. Calzavara of Treviso emphasized the significance of acute hyperglycemia for the early diagnosis of acute necrosis of the pancreas. He said that researches on hyperglycemia should be made systematically in cases of acute abdominal lesions in which pancreatitis is suspected.

Drs. Biolato and Villata of Turin discussed the behavior of Bacterium coli cultivated from the pancreas, in relation to experimental pancreatitis. The researches of these authors have shown that the pancreas has extraordinary resistance to infection, which may be brought about through the blood stream or by the canalicular route.

Dr. Zaffagnini of Parma experimentally produced acute pancreatitis by the introduction of foreign bodies into Wirsung's canal. On introducing the foreign body externally into the intestinal lumen, he observed the genesis of a simple chronic pancreatitis, such as can be brought about by the simple ligation of the canal. When, however, the foreign body was introduced by the duodenal route, after a moderate edema and intralobular and perilobular infiltration there was restitutio ad integrum.

Before adjourning, the congress selected Rome as the next meeting place.

TURKEY

(From Our Regular Correspondent)

Ankara, Jan. 25, 1932.

Repeal of Compulsory Governmental Service for Physicians

In view of the scarcity of physicians in the remote eastern provinces, a law was passed in 1923 according to which a two years' compulsory governmental service was required of the graduates of the medical school. Women physicians were exempt, chiefly because of unsatisfactory living conditions and other professional hardships in the remote provinces. The enforcement of this law has almost accomplished its purpose but seems also to have resulted in fewer applications for admittance to the medical school by candidates who pay their own expenses. So, partly owing to the fact that the majority of vacancies in the eastern provinces are filled now, a bill has recently been introduced into the national assembly according to which this law will be repealed. Only physicians graduating hereafter will benefit by this repeal; those at present working on their two years' term will be required to terminate it. But physicians who have studied at government expense and who have lived all or part of the required time at the government's medical students' home will continue to serve their term in governmental service. The license of a physician found guilty of shunning his obligations in this respect will be withheld for five years, and he will be required to bear the whole cost of his education. Students who have studied at government expense and lived at the medical students' home and who give up the study of medicine, or who for reasons other than physical unfitness have been advised to leave the medical school or home for good, will also be required to pay their expenses.

Alcoholic Beverages Invade the Rural Communities

Alcoholic beverages are forbidden all true believers of Islam, and until recently alcoholism has not been a problem in Turkey. The establishment of ale houses or bars within a Mohammedan community, or in the vicinity of a mosque, was prohibited. Wine was used on the occasion of the celebration of a wedding or of a circumcision, but without such an excuse it was used by a Mohammedan only clandestinely in the home, for if it became known, all household members would be ostracized. Three decades ago uniformed officers were rarely seen using alcoholic beverages openly; they were not permitted to enter places where these were served. But customs have changed with regard to their use, especially since the World War, and now in the large cities alcoholic beverages have entered almost every home. During the war of independence, prohibition was enforced throughout Anatolia; but prohibition was abandoned four years later, partly because of the difficulties in enforcing the law and partly because a monopoly constitutes a source of income; so a government monopoly was instituted instead. Though the monopoly made alcoholic beverages more expensive, they are now in demand even in remote provinces and, according to press reports, the first train bound for Malatia on the opening of the new railroad line to Malatia in 1931 carried ten carloads of them. At the last national medical congress Dr. Fahreddin Kerim, associate professor of mental diseases at the medical school and secretary of the Green Crescent, the Turkish antialcoholic society, reported that alcoholic beverages had lately found their way into the rural communities. When crops fail and peasants work in town they become acquainted with alcoholic beverages and introduce them in the villages. The alcoholic drink generally preferred in Turkey is "raki," which is made from fresh grapes. It is white and distilled, and is flavored with anise; its alcohol content varies from 40 to 60 per cent. The second most popular drink is beer. Turkish women formerly never touched anything containing even the slightest trace of alcohol, but since their emancipation after the World War they have given up their repugnance and today the society woman does not despise a glass of wine at a party. It is mostly during the summer that youths get acquainted with alcoholic beverages by taking a glass of beer in a beer garden. In view of the ever increasing automobile accidents due to intoxicated drivers, and the increase in homicides and divorce traceable to the use of alcoholic beverages, the antialcoholic society has proposed a law to close saloons, thus confining the use of alcoholic beverages to the home.

The Prevention of Cerebrospinal Meningitis

Cerebrospinal meningitis is rare in Turkey, but in the winter of 1928-1929 it was epidemic in Tarsus, near Adana. The disease seemed to have disappeared but during the autumn of 1930 it reappeared in the same locality and during the winter of 1930-1931 an epidemic occurred in Adana. A thorough search was made for meningococcus carriers, who were at once isolated, and diluted iodine or iodine-glycerin was applied to the nasopharynx until further examinations were negative. The absence of roads made laboratory tests and mass examination in rural communities difficult. Therefore it was decided to make general the application of antiseptics. But the application of irritating medicaments was not practical and did not give satisfactory results. As cases occurred in 1931 with the same severity in localities where such measures were taken the year before, another method was decided on. A solution of acriflavine hydrochloride, 1:250, was used, two or three drops in each nostril morning and night. It was easy to apply this method in schools and in the homes. In communities where it was possible to use this preventive measure generally, the disease has disappeared.

Marriages

TOSON OLCOTT SUMMERS, Surg., Lieut. Commander, U. S. Navy, to Miss Cynthia Mary Peacock of Derby, England, February 16.

HENRY LEVI DAVIS, Huntington Park, Calif., to Miss Frances Leon Gibson of Independence, Kan., January 29.

ELVIN L. SEDERLIN, Laramie, Wyo., to Miss Edythe Christine Cutter at Holmesville, Ohio, January 28.

ARTHUR C. DEAN, Hot Springs, S. D., to Miss Grace J. Hansen of Huron, at Omaha, recently.

LEONARD BEAVER ULSH, Philadelphia, to Miss Eleanor A. G. Grenover, recently.

Deaths

Albert Edward Flagstad ⊕ Minneapolis; University of Minnesota Medical School, Minneapolis, 1921; member of the Clinical Orthopedic Society and fellow of the American College of Surgeons; assistant instructor in orthopedics at his alma mater; on the staffs of the Gillette State Hospital for Crippled Children, St. Luke's Hospital, Bethesda Hospital, Midway Hospital and the Children's Hospital, St. Paul, and the Fairview Hospital, Minneapolis; on the visiting staff of St. Joseph's Hospital, St. Paul; aged 40; died, January 26, of lobar pneumonia.

William Henry Cantle ⊕ Mamaroneck, N. Y.; Cornell University Medical College, New York, 1901; member of the Associated Anesthetists of the United States and Canada; past president of the Westchester County Medical Society; served during the World War; formerly on the staffs of the United Hospital, Port Chester, and the New Rochelle (N. Y.) Hospital; aged 56; died, January 30.

Henry I. Raymond ⊕ Colonel, U. S. Army, retired, Berkeley, Calif.; Bellevue Hospital Medical College, New York, 1880; entered the army as an assistant surgeon in 1881 and was promoted through the various grades to that of colonel in 1915; was retired by the President in 1919, being 62 years of age; veteran of the Spanish-American War; aged 74; died, January 30, in the Letterman General Hospital, San Francisco.

Jesse Sumner Bragg, Manchester, N. H.; Medical School of Maine, Portland, 1905; member of the New Hampshire Medical Society, Maine Medical Association, New England Dermatological Society and the Radiological Society of North America; on the staff of the Hôpital Notre-Dame de Lourdes; aged 54; was killed, January 1, when his shotgun accidentally exploded.

Victor Henry de Somoskeoy, West Chester, Pa.; Detroit College of Medicine, 1905; served during the World War; public health director of Chester County; formerly health officer of Morgan County, Ill., and deputy state health officer of the tenth sanitary district of Maryland; aged 54; died, January 12, in the Chester County Hospital, of pneumonia.

Greyson Curtis Gardner, La Junta, Colo.; Indiana University School of Medicine, Indianapolis, 1925; member of the Colorado State Medical Society; served during the World War; on the staffs of the Atchison, Topeka and Santa Fe Railroad Hospital and the Mennonite Hospital and Sanitarium; aged 36; died, January 18, of tuberculosis.

Solon Rodney Towne, Omaha; Dartmouth Medical School, Hanover, N. H., 1875; member of the Nebraska State Medical Association; emeritus professor of hygiene, University of Nebraska College of Medicine; formerly on the staff of the Douglas County Hospital; aged 85; died, January 28, of bronchopneumonia.

Edward James Mahoney, Bedford, Ohio; Hahnemann Medical College and Hospital of Philadelphia, 1928; on the staffs of the Bedford (Ohio) Municipal Hospital and the Huron Road Hospital, Cleveland; aged 29; died, January 22, in the Springfield Lake Sanatorium, East Akron, of pulmonary tuberculosis.

John Abraham Freeborn ⊕ Fergus Falls, Minn.; Rush Medical College, Chicago, 1889; Bellevue Hospital Medical College, New York, 1892; served during the World War; on the staff of the George B. Wright Memorial Hospital; aged 67; died, January 25, in Rochester, of carcinoma of the pancreas.

Louis Grey Stirling, Baton Rouge, La.; Tulane University of Louisiana School of Medicine, New Orleans, 1894; member of the Louisiana State Medical Society; formerly member of the city council; on the staff of Our Lady of the Lake Sanitarium; aged 69; died, Dec. 19, 1931, of heart disease.

Marvin Lamar Parler, Wedgefield, S. C.; Medical College of the State of South Carolina, Charleston, 1900; member of the South Carolina Medical Association; on the staff of the Tuomey Hospital, Sumter; aged 52; was instantly killed, January 15, when his gun was accidentally discharged.

George Rosario Cusson ⊕ Berlin, N. H.; University of Vermont College of Medicine, Burlington, 1924; member of the New Hampshire Medical Society; president and formerly secretary of the Coos County Medical Society; aged 33; died, January 4, in Burlington, Vt., of chronic nephritis.

Frederick Murray Doyle, Chicago; Jenner Medical College, Chicago, 1903; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1904; member of the Illinois State Medical Society; aged 51; died, Dec. 8, 1931, of coronary embolism.

Alfred Pellar Webb, Atmore, Ala.; Medical College of Alabama, Mobile, 1896; member of the Medical Association of the State of Alabama; formerly chairman of the board of education; on the staff of the Atmore General Hospital; aged 58; died, January 11, of cerebral hemorrhage.

Louis Livingston Seaman ⊕ Bronxville, N. Y.; Jefferson Medical College of Philadelphia, 1876; Medical Department of the University of the City of New York, 1877; veteran of the Spanish-American and World wars; aged 80; died, January 31, in the Lawrence Hospital.

Arthur Ramsey Williamson, Pueblo, Colo.; Hahnemann Medical College and Hospital, Chicago, 1912; member of the Colorado State Medical Society; aged 50; died, January 7, in St. Mary Hospital, of streptococcic septicemia, streptococcic meningitis and otitis media.

Charles Holt McDonell, Winona, Minn.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1906; member of the Minnesota State Medical Association; on the staff of the Winona General Hospital; aged 55; died, January 12, of heart disease.

Joseph Grant Killgore, Vermilion, Ill.; Kentucky School of Medicine, Louisville, 1888; member of the Illinois State Medical Society; aged 65; died, Dec. 27, 1931, in a hospital at Paris, of injuries received in an automobile accident.

Charles C. Mandeville, Galion, Ohio; Starling Medical College, Columbus, 1893; served during the Spanish-American and World wars; aged 65; died, January 17, in the Good Samaritan Hospital, of carcinoma of the parotid gland.

Arthur B. Smith, Cleveland; New York Homeopathic Medical College and Hospital, 1897; aged 59; died, January 20, in St. John's Hospital, of injuries received when the automobile in which he was driving was struck by a train.

Elmer Clarence Byram, Okmulgee, Okla.; National University of Arts and Sciences, St. Louis, 1912; member of the Oklahoma State Medical Association; aged 49; died, January 23, in the City Hospital, of coronary thrombosis.

James C. May, York, Pa.; Jefferson Medical College of Philadelphia, 1881; member of the Medical Society of the State of Pennsylvania; for six years member of the school board; aged 74; died, January 19, of arteriosclerosis.

Edward N. Chastain ⊕ Butler, Mo.; Missouri Medical College, St. Louis, 1881; secretary and past president of the Bates County Medical Society; aged 75; died, January 5, of chronic myocarditis and aortic regurgitation.

Ida M. Kahn, Nanchang, China; University of Michigan Medical School, Ann Arbor, 1896; superintendent of the Women's and Children's Hospital; aged 58; died, Nov. 9, 1931, in a sanatorium at Shanghai.

William Warren Murphy, Sierra Madre, Calif.; Missouri Medical College, St. Louis, 1876; Bellevue Hospital Medical College, New York, 1884; aged 85; died, Nov. 21, 1931, of cerebral embolism and thrombosis.

Eugene Harold Brown ⊕ Pueblo, Colo.; Northwestern University Medical School, Chicago, 1911; served during the World War; on the staff of St. Mary's Hospital; aged 43; died, January 24, of pneumonia.

John West Benton, Ogdensburg, N. Y.; University of Pennsylvania School of Medicine, Philadelphia, 1886; for many years health officer of Ogdensburg; aged 67; died, January 25, of carcinoma of the stomach.

Howard Winslow Gibbs, Scranton, Pa.; Baltimore Medical College, 1913; member of the Medical Society of the State of Pennsylvania; served during the World War; aged 44; died, January 30, of carcinoma.

John Thomas Johnson, Taft, Calif.; Jefferson Medical College of Philadelphia, 1909; aged 52; died, Nov. 8, 1931, in the Cottage Hospital, of chronic interstitial nephritis and hypertension.

Charles W. Geel, Berlin, N. Y.; Albany Medical College, 1885; member of the Medical Society of the State of New York; aged 82; died, January 2, of acute dilatation of the heart.

Arch Sylvester Chapman ⊕ Fort Smith, Ark.; University of Nashville (Tenn.) Medical Department, 1909; aged 45; was found dead, Dec. 22, 1931, of a self-inflicted bullet wound.

Henry Egerton Day, Kingston, Ont., Canada; Queen's University Faculty of Medicine, Kingston, 1902; aged 54; was found dead in his garage, Dec. 14, 1931, of heart disease.

Martin V. Tyndall, Springfield, Mo.; Barnes Medical College, St. Louis, 1896; also a druggist; aged 67; died, January 21, of chronic nephritis and cerebral hemorrhage.

Edwin Russell Tuttle, Miami, Fla.; Hahnemann Medical College and Hospital, Chicago, 1888; aged 68; died, January 5, of cerebral hemorrhage, hypertension and myocarditis.

Joseph Dutra, Santa Maria, Calif.; Boston University School of Medicine, 1895; aged 72; died, Nov. 5, 1931, of cerebral hemorrhage and cardiovascular renal disease.

James M. McDowell, La Grange, Tenn.; University of Tennessee Medical Department, Nashville, 1880; aged 74; died, Dec. 3, 1931, of heart disease and nephritis.

William Anthony Hershiser, Oakland, Calif.; Cooper Medical College, San Francisco, 1891; aged 71; died, Nov. 2, 1931, in Turlock, of cerebral hemorrhage.

Frederick Harlan Hadley, San Francisco; Cooper Medical College, San Francisco, 1896; aged 61; died, Nov. 24, 1931, of cerebral hemorrhage and arteriosclerosis.

Benjamin W. D. Hill, Dawson, Texas; University of Tennessee Medical Department, Nashville, 1885; aged 68; died, January 1, in a sanatorium at Waco.

Andrew Johnson Waynick, Clarksville, Tenn.; University of Tennessee Medical Department, Nashville, 1885; aged 70; died, Nov. 23, 1931, of mitral stenosis.

Leander A. Dascombe ⊕ Skowhegan, Maine; Bellevue Hospital Medical College, New York, 1877; aged 78; died, Dec. 23, 1931, of cerebral hemorrhage.

Letitia L. Frantz, Lancaster, Pa.; Woman's Medical College of Pennsylvania, Philadelphia, 1884; aged 73; died, Dec. 18, 1931, of cerebral hemorrhage.

E. Davis Allen, Cortland, N. Y.; Eclectic Medical College of the City of New York, 1880; aged 76; died, January 21, of a self-inflicted bullet wound.

Walter Harvey Sullivan, Sausalito, Calif.; Cooper Medical College, San Francisco, 1883; aged 70; died, January 14, of an injury received in a fall.

Charles Chester Sperry, Marengo, Ill.; Chicago Medical College, 1874; aged 80; died, January 29, of chronic myocarditis and chronic nephritis.

Frank Edgar Dolson, Philadelphia; Jefferson Medical College of Philadelphia, 1901; aged 53; died, January 21, of carcinoma of the stomach.

Eliphalet N. Wright, Olney, Okla.; Albany (N. Y.) Medical College, 1884; aged 73; died, January 9, in Dr. Moorman's Sanatoria, Oklahoma City.

Thomas Ezra Rhodes, St. Louis; Barnes Medical College, St. Louis, 1910; aged 57; died, Dec. 28, 1931, in the Central Hospital, of empyema.

Joseph French Duncan, Etowah, Tenn.; University of Louisville (Ky.) School of Medicine, 1882; aged 72; died, Dec. 23, 1931, of septicemia.

Truman Huff Holmes, Bremerton, Wash.; Medical College of Ohio, Cincinnati, 1889; aged 65; died, January 7, of tumor of the brain.

Dudley Cureton Frise, Minneapolis; University of Illinois College of Medicine, Chicago, 1915; aged 44; died, January 10, of heart disease.

Preston A. Edwards ⊕ Nardin, Okla. (licensed, Oklahoma, under the Act of 1908); aged 71; died, January 27, of cerebral hemorrhage.

Sherrod W. Dutton, McCracken, Kan. (licensed, Kansas, 1901); aged 90; died, January 3, in Ness City, of arteriosclerosis.

William T. Hinds, Arab, Ala.; Medical College of Alabama, Mobile, 1890; aged 68; died, Dec. 21, 1931, of heart disease.

Correspondence

FLOWERS IN THE SICKROOM

To the Editor:—In THE JOURNAL, Dec. 5, 1931, page 1731, Dr. Stein asked why flowers are removed from the sickroom at night. In your answer you say: "The statement of one hospital superintendent that carbon dioxide is liberated is apparently not correct. Living plants absorb carbon dioxide and give off oxygen."

True enough, but this absorption of carbon dioxide stops in the dark, and cell respiration continues. Respiration is going on continually, in light and in darkness, and carbon dioxide is given off. It isn't true that the processes of giving off carbon dioxide and oxygen are reversed. Carbon dioxide is given off day and night, the rate being but little higher during the day or in the light than it is in darkness or at night. It varies somewhat more with change in temperature, increasing up to 40 C. Weight for weight, plants give off about the same amount of carbon dioxide as animals do. No patient in an average sized room could notice the effect of an average sized bouquet of flowers as far as the carbon dioxide is concerned. And the amount of oxygen given off during the day is also negligible as far as the patient is concerned.

A. P. SY, Buffalo.

Professor of Chemistry, University of Buffalo.

[NOTE.—Irrespective of whether the reaction is that of yielding oxygen or of yielding carbon dioxide, the amounts given off are surely not appreciable so far as any change in the oxygen-carbon dioxide ratio of a well ventilated hospital room is concerned.—ED.]

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

CHLORINE LEAKS IN CHLORINATION OF SWIMMING POOLS

To the Editor:—In connection with the chlorination of a swimming pool there sometimes occur leaks in the apparatus. The nature of the escaping gas makes it almost impossible for the attendant to do the necessary work to locate the leaks and, besides, constitutes a menace to him and to others. Can you advise me as to what means may be taken to safeguard the life and health of the attendant and at the same time permit him to do the required work in the presence of escaping chlorine gas? If there is no satisfactory measure other than the use of a gas mask, can you inform me where such a mask may be obtained and advise me concerning its probable length of serviceable life?

SHATTUCK W. HARTWELL, M.D., Muskegon, Mich.

ANSWER.—Any sustained and substantial leak of chlorine in connection with the chlorination of swimming pool waters indicates defective apparatus. Modern chlorinating machinery, when properly operated, prevents any leaks in harmful concentrations. The wearing of a gas mask around a swimming pool is poor psychology, if worn in view of the bathers. Prejudice against chlorination is thus created, and patronage is likely to diminish. For this reason the point of first attack in control should be the apparatus itself. If, for some practical reason, leaks cannot be eliminated by tightening the apparatus, a gas mask is necessary. Chlorine is an immediate irritant to the respiratory tract when the concentration is no higher than 15 parts per million parts of air. Prolonged exposure to an atmosphere containing 2 parts of chlorine will eventuate in some damage. This amount is lower than that giving rise to any odor of chlorine.

Suitable gas masks may be procured from the Mine Safety Appliances Company, Braddock, Thomas and Meade streets, Pittsburgh. In addition, extensive information, including many other sources of gas masks, may be obtained from the National Safety Council, 20 North Wacker Drive, Chicago.

With reasonable care, the serviceable length of life of an occasionally used mask may be one year, although replacement of certain parts may be required.

DANGER OF SYPHILIS TO ATTENDING PHYSICIAN

To the Editor:—A member of my class in the school of medicine, while attending an autopsy on a congenital syphilitic fetus, Oct. 10, 1931, had a small drop of the bloody water splashed into his eye. The incident was not noticed by the instructor, and the student thought little of it at the time. However, about two hours later he began to worry and washed his eye with a dilute solution of a germicide. He went to the director of the clinic for advice. He was given an injection of 0.5 Gm. of neoarsphenamine late that same afternoon, or about six hours after the accident. Two days later he was given an injection of 0.4 Gm. of arsphenamine, and one week following this, another injection of 0.4 Gm. of arsphenamine. At no time did a lesion of any sort develop on the conjunctiva. The Wassermann and Kahn tests were done, December 18, or about ten weeks following the accident, and both were negative. What is the possibility that infection actually occurred? Was the treatment given sufficient to abort the possible infection? Should this student have the Wassermann or Kahn tests repeated at intervals? Please omit name.

M.D., Missouri.

ANSWER.—Three possibilities must be considered:

1. The organisms were dead in the fetus or so weakened by the water or the injected germicidal solution that they could not infect.
2. The infection took place but was overcome by the treatment.
3. The treatment was sufficient to delay development of the infection but not enough to cure it.

It is to be hoped that the fact agrees with either the first or the second of these possibilities; but it must be granted that the third is possible, and therefore the case should be watched carefully for the rest of the year. A clinical examination with particular attention to the eye, the mouth and the anogenital region, and serologic tests should be made once a month. If nothing develops in one year, we believe that the danger is past. The first possibility is probably the true one.

IRRADIATION IN CARCINOMA OF BREAST

To the Editor:—In scirrhous carcinoma of the breast, is it advisable to use preoperative and postoperative radiation, as recommended in other types of carcinoma of the breast? Please omit name.

M.D., California.

ANSWER.—The scirrhous type is by far the most common form of breast cancer. Except in hopelessly inoperable stages of the lesion, i. e., ulceration of the skin with infection, the same treatment routine is applicable, a combination of surgery and irradiation. Preoperative irradiation, originally advised on the basis that a preliminary lymphatic block is produced, is no longer advised. Postoperative irradiation, beginning about ten days after operation, is necessary and is undoubtedly responsible for the relatively high percentage of present-day cures. It is important to remember that the scirrhous form, though less malignant than the medullary, is still a malignant tumor and that when axillary lymphatics are involved in this type of the disease (scirrhous) the incidence of early recurrence is about 80 per cent.

TREATMENT OF EXFOLIATIVE DERMATITIS

To the Editor.—I should like to know the treatment of dermatitis exfoliativa and the rationale of giving splenic extract, if there is any. Please omit name.

M.D., Arizona.

ANSWER.—The first indication is rest in bed, which also affords protection from chilling. Colloid baths may be given, one or more a day according to the response on the part of the patient; the water should be kept at an even temperature (about blood temperature or a little below) and the patient protected from drafts by blankets over the tub. If necessary, an ice bag should be used on the head. When the patient emerges from the bath, the skin should be dabbed partly dry and an ointment (10 per cent boric acid in petrolatum or ointment of rose water) applied immediately. The bath is made by boiling three cupfuls of oatmeal to a mush and putting it in a gauze bag and then into the tubful of warm water, in which a cupful of sodium bicarbonate has already been dissolved. The bag of oatmeal should be squeezed gently and the water stirred with it.

Engman uses the powder bath, keeping the patient naked in a bed full of talcum powder, with plenty of powder dusted on the skin. For a day or so this may be uncomfortable, but then the patient comes to like it and improves.

For nonarsphenamine cases, the exception nowadays, quinine in large doses is recommended. Acetylsalicylic acid or pilocarpine may be useful. For the much commoner cases due to overdosage with arsphenamine or its modifications, sodium thiosulphate intravenously is the chief remedy, the drug being carefully prepared for intravenous use dissolved in a small amount of sterile distilled water. From 0.1 to 0.3 Gm. once a day is given at first; the dose is gradually increased to 1 Gm. daily and is then given once every other day. Sometimes this treatment disagrees and must be discontinued. Roentgen rays in fractional doses, one fourth of an erythema dose once a week, are highly recommended by Andrews, care being taken that not too large a part of the surface of the body is treated on any one day. The blood count, particularly the white cell count, should be carefully watched. If a leukopenia appears, it may be due to an overdose of rays. Unfiltered rays are used.

The rationale of the injection of splenic extract is not well understood nor has the product been standardized. The spleen belongs to the reticulo-endothelial system, and certain extracts made from it seem to have a marked effect in supplying something necessary to the prevention of infection in splenectomized animals and human beings. It also seems at times to be effectual in the treatment of anemias and other general disorders. In skin disease, such as eczema and urticaria, it has been used most effectually in the various forms of sensitization. Exfoliative dermatitis belongs to this group, and it might be expected to have a beneficial effect. Whether this action is that of a foreign protein or a hormone, or whether it is due to the nuclein so plentiful in the spleen is not established.

POSSIBLE TABES OR CEREBROSPINAL SYPHILIS

To the Editor:—About two months ago, I saw a young man at his home, evidently in severe pain. His hands were pressed tightly together on his abdomen just to the left of the end of the sternum. He complained of severe nonradiating pain in this area. While I stood there, questioning him, the attack suddenly disappeared, leaving absolutely no tenderness. When he could speak more freely, he told me that this had been the second attack he had had of this nature. The seizures came on suddenly, gradually growing in intensity until the pain was almost unbearable, nonradiating and localized to a small area in the upper portion of the abdomen just to the left of the line of the sternal border and just below the lower ribs. After the pain disappears, there is no tenderness left or any local symptoms. I found that the bowels were constipated and for the last two months the patient had been eating irregularly, his meals being mostly cold beer, sandwiches and salted peanuts. He was 33 years of age, well built and had always been perfectly well. He gave an absolutely negative past history of stomach disorders and was physically normal on examination. I made a diagnosis of acute gastritis, put him on a suitable balanced die, emptied his bowels and gave him a digestive mixture. The following week he was all right, felt fine and had no further attacks. I again examined the heart and abdomen, and could find nothing. I happened to think of Osler's dictum, "Know syphilis and you will know disease," so I asked the patient whether he had ever had a chancre. He stated that he had, about a year before. He had gone to a doctor who had put some powder on the chancre and had told the patient that the disease would never bother him in his blood. Aside from a somewhat sluggish reaction of the pupils to light, I could not find any external evidence of syphilis, and he stated that there had not been any symptoms. I did not do a lumbar puncture but took a Wassermann test, which showed a reaction of 4 plus for both antigens. Do you think that these attacks of pain that he had could have been tabetic? Also, please inform me of the approved system of treatment which I should use here for the syphilitic infection, especially as to how long the treatment should continue and how long this patient should be kept under observation after the Wassermann reaction is made negative. I do not wish to do a puncture on this man unless you think it necessary, as he is sensitive to pain and faints every time a needle is used under his skin. Harold D. Sehl, M.D., Clarkes Mills, N. Y.

Answer.—In the absence of more definite signs, such as loss of deep reflexes, incoordination and a positive Romberg sign, a positive diagnosis of tabes dorsalis is not justified. It is possible, however, that the attacks are of the nature of gastric crises resulting from syphilis of the nervous system and that the disease may evolve more typically. Since no antisyphilitic treatment has been administered, active courses should be instituted, starting with compounds of mercury and possibly of bismuth, arsphenamine being given later. A lumbar puncture may be postponed until these preliminary treatments have been administered but should then be done in order to establish or rule out involvement of the central nervous system and furnish a guide to subsequent treatment. Under this heading will have to be considered some form of fever therapy and the use of tryparsamide as well as further active antisyphilitic remedies. The puncture should not be delayed merely because the Wassermann reaction of the blood has not become negative but should be done shortly after the completion of the first course of antisyphilitic remedies.

RABIES VACCINES AND PASTEUR TREATMENT

To the Editor:—Please give me the comparative values of rabies vaccine and the Pasteur treatment in the prevention of rabies. This city is called on to do considerable work along this line and the difference in cost between the standard rabies vaccine and the Pasteur treatment is considerable. P. R. Outlaw, M.D., El Paso, Texas.

Answer.—So far as the available evidence goes, the newer rabies vaccines, including those made of killed virus, are about as efficient as the old Pasteur treatment, which utilized a living attenuated virus.

USE OF COCAINE FOR LOCAL ANESTHESIA IN CYSTOSCOPY

To the Editor:—The free use of cocaine solutions by ear, nose and throat specialists has caused me to wonder whether urologists do not exaggerate the dangers of this drug as a urethral injection. The remark of Keyes that "cystoscopy as usually performed is a scandalously painful operation" seems borne out by the obvious apprehension with which male patients view the procedure. I should greatly appreciate an authoritative reply to the following questions: Is cocaine generally condemned by the best authorities as a local anesthetic for the urethra, or is its use permissible in suitable amounts and with caution? At the Mayo Clinic I observed that a 1 per cent solution of cocaine hydrochloride was used for cystoscopies, apparently as a routine. Do you think that any danger attends this? What volume of a 1 per cent solution of cocaine hydrochloride could one inject into a man's urethra and bladder with reasonable safety preliminary to passing sounds, cystoscopes and similar instruments? Would subacute or chronic urethritis materially increase the danger of toxic absorption of such an injection? Is butyn, isocaine or any other cocaine substitute (excluding procaine hydrochloride, which seems of little value) efficacious and safe for urethral injection? Please omit name.

M.D., Utah.

Answer.—The best urologic authorities are divided as to the risk incurred in the injection of cocaine into the male urethra. Keyes and Randall warn against its use, while Walthers and the staff of the Mayo Clinic report that they have used it for years without untoward effect.

Thirty cubic centimeters of a 1 per cent solution may be used with reasonable safety preliminary to the passage of sounds or cystoscopes, provided the solution is made up fresh for each case. This can readily be done by dissolving two 2¼ grain (0.146 Gm.) tablets in 30 cc. of water. There are some who believe that some of the toxic properties in cocaine solutions are the result of a fungus growth which appears in most stock solutions in a very short time. Care should be taken to inject the solution slowly and to avoid the exertion of undue hydrostatic pressure, as rupture into the small blood vessels occurs easily.

Subacute or chronic urethritis has never been noted to increase the danger of toxic absorption.

Butyn, isocaine and other cocaine substitutes are not as efficacious as cocaine, according to clinical experience, and it is doubtful whether they are any safer for urethral injections.

Following instrumentation, either immediate or delayed, cocaine solution should not be injected into the urethra, as traumatized surfaces induce rapid toxic absorption.

REACTION TO SENSITIZATION

To the Editor.—A farmer, aged 33, consulted me regarding spells of dizziness and nausea which come on only when he does work in his barn. He has been troubled for about four weeks, never before. He states that he feels perfectly well in any other place, has a good appetite and has never been ill in his life that he can recall. He can do his work without any difficulty whatever, with the exception of indoor work in his barn. He says that in a few minutes after entering his barn, perhaps only to put a harness on a team, he begins to feel dizzy and sick and is obliged to get out into the fresh air, where in a short time he feels all right again. So far as he knows, there are no chemicals or fumes of any kind in the barn other than those from the animals and their droppings. I have examined him carefully several times and cannot find anything abnormal. The urine, the blood and the special senses are normal, and the mentality also apparently is normal. I suggested that he try some oil of cloves in petrolatum to be smeared in the nostrils just before entering the barn. He tells me that this prevents the diziness for a while, till the aroma of the cloves is dissipated.

A. H. Campbell, M.D., Rocanville, Sask.

Answer.—The spells of vertigo and nausea, which occur only when the patient is working in the barn, may be explained in either of two ways: 1. They may be an evidence of functional disorder; the odor of the barn and its contents may cause the patient to feel nauseated and dizzy. This theory, however, is lessened in value by the fact that the duration of symptoms is only four weeks, whereas in all probability such contact has existed from childhood. 2. The symptoms may be due to an allergic manifestation; the odor or inhalation of animal dander from the barn contents may cause a temporary disorder of the brain. Just what the nature of this condition is can only be surmised, as no pathologic reports exist. However, it is known that allergy in general is characterized by one or both of two conditions: spasm of smooth muscle or increased capillary permeability with resultant localized edema. The latter condition would be compatible with symptoms such as are noted here and could come and go rapidly just as the ordinary hive, which is a localized area of edema, may come and go quickly. Whether the condition is allergic or not will depend on further information, such as (1) the presence of some other allergic condition in the patient; for example, asthma, hay fever, urticaria or migraine; (2) a history of some allergic condition in the family; (3) the presence of blood eosinophilia, or (4) positive skin reactions, although these probably would not be obtained. An important clinical test would be to have the patient come in contact with the various contents of the barn, such as horses or cattle, separately, inside and outside the barn. As for treatment, in addition to the measures described the patient might cover his nostrils and mouth with a wet piece of cloth or gauze so that inhalation of the obnoxious odor or dander would be difficult.

UNUSUAL PURPURIC LESIONS OF EXTREMITIES

To the Editor:—A woman, aged 60, with an irrelevant history, six weeks ago felt a severe pain, like the sting of a bee, on the left ankle, anterior to the external malleolus. This was followed at once by an intense itching, not relieved for several minutes, and this in turn was followed by a severe burning sensation. Shortly, there appeared a hemorrhagic area measuring about 1 by 2 inches. For days, at intervals of a few hours and lasting for several minutes, the cycle of sting and itching and burning was repeated. Now the skin over the area has become thickened and brownish, almost wartlike, and the same cycle as before mentioned is repeated several times a day. Lately other hemorrhagic areas, of various sizes, have appeared below the knee, with slight itching and burning, to disappear promptly while others appear. Kindly indicate the name of the malady and suggest treatment. Please omit name.

M.D., Indiana.

Answer.—The greatest obstacle to a helpful answer to this question is the difficulty that is always encountered in visualizing a skin lesion from any written description. The best that can be done is to suggest some possibilities.

The picture could be explained as due to one of the purpura group, the local manifestation of which may vary considerably. A form of simple purpura is observed in those past middle life, especially in those with varicose veins or other circulatory disturbances in the lower extremities, which has been designated as purpura senilis. In this condition purpuric spots appear usually just above the ankle and and on the lower leg. The spots may remain for long periods, and leave pigmented areas. There is a possibility also of a purpura of more serious significance, and the patient should be examined for evidence of systemic disease.

Urticaria also may show a hemorrhagic tendency. Erythema nodosum must also be considered but appears unlikely from the description, as the lesions are red, later becoming darker, but are not hemorrhagic. A form of erythema multiforme, erythema perstans, may show nodules and be itchy, but this is also not hemorrhagic.

Embolic phenomena are a possibility that must be ruled out. The treatment is that of the causative pathologic process.

TREATMENT OF FREQUENT URINATION AND BURNING SENSATION

To the Editor:—A woman, aged 39, has had burning and frequency of urination beginning 5 years ago. She has one child, aged 12, who was delivered instrumentally. A cystocele was repaired three years ago, after which her bladder symptoms disappeared for three months. She had a suprapubic drainage and 1:1,500 silver nitrate irrigations one year ago, following which her symptoms disappeared for a few months and gradually returned. At this operation it was found that she had a small inflamed bladder. She has had many cystoscopic and urine examinations, which have always been negative. She is a druggist's wife and has tried every urinary antiseptic known without benefit. Bladder irrigations with boric acid, and mild silver protein or mercurochrome-220 soluble in the bladder give some temporary relief. She insists there is something wrong in the urethra, but examinations reveal nothing. The former cystocele is well repaired. There is a small rectocele. What do you advise in the line of further treatment?

Chester A. Clark, M.D., Morley, Mich.

Answer.—In cases of contracted bladder that resist treatment, as apparently this one has, one would think of the possibility of submucous infiltration of the bladder or what is often called elusive ulcer. Tuberculosis might be thought of, but this should have been picked up in the examination of the patient. If an ulcer is the cause of the symptoms, the treatment would necessarily depend on the location of the ulcer.

EXCESS HAIR ON GIRL'S BODY

To the Editor:—A girl, aged 5 years, of normal height, weight and sexual development, presents a heavy growth of fine hair on the forearms, back and legs. This condition has been getting more marked for the past six months. The past medical history is negative except for chronic tonsillitis. Is this a sign of glandular dysfunction? What treatment do you advise?

Lewis E. Etter, M.D., Warrendale, Pa.

Answer.—This child probably has some endocrine disturbance. The two glands most liable to be at fault in such cases are the pineal and the suprarenal cortex. A large majority of patients having a teratoma of the pineal also experience precocious puberty. This is accompanied by some increase in the amount of body hair, particularly the pubic and axillary hair, and, of course, by precocious development and function of the genital apparatus. Tumors of the suprarenal cortex more frequently give rise to, or at least are accompanied by, an increase in the amount of hair on the body and face. When these occur in young children they are also accompanied by a precocious growth of the body and genitalia.

One can only suggest that this child be kept under observation, having in mind particularly the possibility of disturbance in the pineal or the suprarenal cortex. No treatment can be suggested at this time. Frequently, cases of abnormal development of hair clear up without treatment.

SHOES FOR CLUBFOOT

To the Editor:—Can you refer me to a manufacturer of shoes for use in convalescence from infantile congenital clubfeet; i. e., shoes with the front part abducted instead of adducted in the common way of children's shoes? I. Sabel, 1015 Chestnut Street, Philadelphia, makes such shoes but refuses to furnish a single clubfoot shoe with a normal mate without a premium of $1.50 over the charge of $7 for two clubfoot shoes. This seems to me not to meet the need of patients with clubfoot, as more than half of them are one-sided cases.

M.D., Michigan.

Answer.—The firm mentioned is used by many orthopedic surgeons. It does seem a little strange to be charged $7 for two clubfoot shoes and $1.50 extra for mismating. When a firm mismates two pairs of shoes, it returns the two others to the factory for remating and, therefore, must make this charge. It is stated on good authority that 57 per cent of cases are unilateral.

INTOXICATION FROM LACQUER AND DUCO

To the Editor—Have there been cases reported of toxic effects from Duco or other lacquers? A patient who suffers with weakness, nervousness and loss of weight feels that his condition is due to inhaling such materials.

M.D., Illinois.

Answer.—The term "Duco" applies only to certain products of the Du Pont Company. Duco consists largely of the acetates of amyl, butyl and ethyl, diluted with denatured alcohol, toluene, butyl alcohol and amyl alcohol. From the point of view of its effects on health it probably does not differ greatly from the pyroxylin lacquers that have been used for many years. Cases of poisoning with such lacquers have been reported in various periodicals. Most of the constituents of lacquers are irritants to the respiratory tract. It is conceivable that the symptoms to which the patient refers may be due to toxic action of some of the ingredients that have been listed. However, it is important to determine the exact content of the lacquer used, whether or not the condition originated during or shortly after exposure, and other factors that are of importance in relationship to industrial disturbances.

PREVENTION OF TRANSMISSION OF RINGWORM

To the Editor:—We have, at our plant, the question of disinfecting rubber boots so as to render them safe for reissue. I desire to safeguard especially against the transmission of tinea infections from one person to another. What is the best method of accomplishing this purpose?

E. C. McCulloch, M.D., Staten Island, N. Y.

Answer.—The solution used for preventing the spread of ringworm in schools, solution of chlorinated soda, diluted to contain 1 per cent of sodium hypochlorite, may be successful, or a 5 per cent solution of thymol in alcohol. The boots should be rinsed afterward; in case of the hypochlorite treatment, the rinsing should be with water; in case of thymol, which irritates some skins, the excess should be removed from the boots by rinsing with alcohol.

AREAS OF GIANT RAGWEED GROWTH

To the Editor:—Will you please advise me as to the specific localities in the United States, especially in the Eastern section, that are free from giant ragweed? I have heard that Montauk Point, Long Island, N. Y. is. Can you confirm this?

Emily C. Lacy, Annapolis, Md.

Answer.—It is altogether likely that giant ragweed is absent in the vicinity of Montauk Point, as this species is not usually found in sandy soil. This plant thrives best in the rich, alluvial soil of river bottom land. It is not found at all on the Pacific Coast and grows sparingly in the Mountain states. Its northern range does not extend as far as that of short ragweed (Ambrosia elatior). It is fairly common in southwestern Ontario but is not found at Toronto. Although common at Buffalo, only stray specimens are found east of the Connecticut River and there is none along the coast, from Charleston, S. C., to Miami.

Council on Medical Education and Hospitals

COMING EXAMINATIONS

American Board of Obstetrics and Gynecology: Written examinations will be held in nineteen cities of the United States and Canada, March 26. The general, oral and clinical examination will be held in New Orleans, May 10. Sec., Dr. Paul Titus, 1015 Highland Building, Pittsburgh.

Arizona: Phoenix, April 5-6. Sec., Dr. B. M. Berger, 12 N. Central Ave., Phoenix.

California: *Reciprocity.* Los Angeles and San Francisco, March 16. Sec., Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento.

Colorado: Denver, April 6-9. Sec., Dr. Wm. Whitridge Williams, 422 State Office Bldg., Denver.

Connecticut: *Homeopathic.* New Haven, March 8. Sec., Dr. Edwin C. M. Hall, 82 Grand Avenue, New Haven. *Regular.* Hartford, March 8-9 *Endorsement.* March 22. Sec., Dr. Thomas P. Murdock, 147 W. Main St., Meriden.

Idaho: Boise, April 5. Comm. of Law Enforcement, Hon. Emmitt Pfost, Boise.

Illinois: Chicago, April 12-14. Supt., Mr. Paul B. Johnson, Springfield.

Maine: Portland, March 8-9. Sec., Dr. Adam P. Leighton, Jr., 192 State St., Portland.

Massachusetts: Boston, March 8-10. Sec., Dr. Stephen Rushmore, *144 State House, Boston.*

Minnesota: *Basic Science.* Minneapolis, April 5-6. Sec., Dr. J. C. McKinley, 126 Millard Hall, University of Minnesota, Minneapolis.

Montana: Helena, April 5. Sec, Dr. S. A. Cooney, Power Block, Helena.

New Hampshire: Concord, March 10-11. Sec., Dr. Charles Duncan, Concord.

New Mexico: Santa Fe, April 11. Sec., Dr. P. G. Cornish, Jr., 221 W. Central Ave., Albuquerque.

Oklahoma: Oklahoma City, March 8-9. Sec., Dr. J. M. Byrum, Shawnee.

Rhode Island: Providence, April 7-8. Dir., Dr. Lester A. Round, 319 State Office Building, Providence.

West Virginia: Charleston, March 22. Sec, Dr. W. T. Henshaw, Charleston.

Indiana Reciprocity Report

Dr. William R. Davidson, secretary, Indiana State Board of Medical Registration and Examination, reports 43 physicians licensed by reciprocity with other states during 1931. The following colleges were represented:

College	Year Grad.	Reciprocity with
LICENSED BY RECIPROCITY		
College of Medical Evangelists	(1930) Michigan,	Tennessee
Chicago College of Medicine and Surgery	(1913)	Illinois
Hahnemann Medical College and Hospital, Chicago	(1889)	Illinois
Loyola University School of Medicine	(1926), (1928)	Illinois
Northwestern University Medical School	(1930)	Illinois
Rush Medical College	(1923), (1929)	Illinois
University of Illinois College of Med.	(1929), (1930, 2)	Illinois
State University of Iowa College of Medicine	(1902)	Iowa
University of Louisville Medical Department	(1915)	Kentucky
University of Louisville Sch. of Med.	(1925), (1926), (1929)	Kentucky, (1929) Ohio
College of Physicians and Surgeons of Baltimore	(1891)	N. Carolina
Johns Hopkins University School of Med.	(1917), (1927)	Maryland, (1926) Pennsylvania
Detroit College of Medicine and Surgery	(1927)	Michigan
University of Michigan Homeopathic Medical School	(1913)	Michigan
University of Michigan Dept. of Med. and Surg.	(1914)	Michigan
University of Michigan Medical School	(1924)	Maryland, (1925), (1926), (1927), (1929) Michigan
University of Minnesota Medical School	(1927)	Minnesota
Syracuse University College of Medicine	(1920)	New York
Eclectic Medical College, Cincinnati	(1929)	Kentucky
Ohio State University College of Medicine	(1924), (1926)	Ohio
University of Cincinnati College of Medicine	(1927)	Ohio
Jefferson Medical College of Philadelphia	(1928)	Penna.
Temple University School of Medicine	(1928)	Ohio
University of Nashville Medical Department	(1909)	Alabama
Milwaukee Medical College	(1910)	Wisconsin
University of Toronto Faculty of Medicine	(1921)	Illinois, (1923) Michigan
University of Athens School of Medicine, Greece	(1915)	W. Virginia

Hawaii October Examination

Dr. James A. Morgan, secretary, Hawaii Board of Medical Examiners, reports the written examination held at Honolulu, Oct. 12-15, 1931. The examination covered 10 subjects and included 55 questions. An average of 75 per cent was required to pass. Six candidates were examined, all of whom passed. The following colleges were represented:

College	Year Grad.	Per Cent
PASSED		
Indiana University School of Medicine	(1930)	82.2
State University of Iowa College of Medicine	(1930)	76.4
University of Louisville Schoool of Medicine	(1931)	79.9
University of Michigan Medical School	(1930)	78.7
Washington University School of Medicine	(1930)	84.3
University of Vermont College of Medicine	(1931)	82.1

Arkansas November Report

Dr. Sam J. Allbright, secretary, State Medical Board of the Arkansas Medical Society, reports the written examination held at Little Rock, Nov. 10-11, 1931. The examination covered 12 subjects and included 120 questions. An average of 75 per cent was required to pass. One candidate was examined and passed. Eleven physicians were licensed by reciprocity with other states. The following colleges were represented:

College	Year Grad.	Per Cent
PASSED		
Barnes Medical College, St. Louis, Mo.	(1899)	79

College	Year Grad.	Reciprocity with
LICENSED BY RECIPROCITY		
Rush Medical College	(1897) California, (1930)	Illinois
Tulane University of Louisiana School of Med.	(1930, 2)	Louisiana
Washington University School of Medicine	(1929), (1930)	Missouri
University of Nashville Medical Department	(1908)	Tennessee
University of Tennessee College of Medicine	(1925)	Louisiana, (1916), (1930), (1931) Tennessee

Ohio October Report

Dr. H. M. Platter, secretary, Ohio State Medical Board, reports 34 physicians licensed by reciprocity with other states and 3 physicians licensed by endorsement of credentials at a meeting held Oct. 6, 1931. The following colleges were represented:

College	Year Grad.	Reciprocity with
LICENSED BY RECIPROCITY		
University of Colorado School of Medicine	(1929)	Colorado
Howard University School of Medicine	(1930)	Maryland
Rush Medical College	(1926)	Maryland
Indiana University School of Medicine	(1910), (1925)	Indiana
State University of Iowa College of Med.	(1928), (1930)	Iowa
University of Kansas School of Medicine	(1930)	Kansas
Kentucky School of Medicine	(1893)	W. Virginia
University of Louisville School of Medicine	(1928)	Kentucky
Baltimore Medical College	(1905) Pennsylvania, (1907)	Colorado
Johns Hopkins University Schoool of Med.	(1928), (1931)	Maryland
University of Michigan Medical School	(1919)	New York, (1927), (1928, 2), (1929, 2), (1930, 4) Michigan
St. Louis University School of Medicine	(1930)	Missouri
New York Homeopathic Medical College and Hospital	(1906)	New York
Hahnemann Medical College and Hospital of Philadelphia	(1929), (1930, 2)	Penna.
Temple University Schoool of Medicine	(1917), (1927)	Penna.
Woman's Medical College of Pennsylvania	(1908)	Penna., (1910) Maryland
University of Toronto Faculty of Medicine	(1923)	Michigan

College	Year Grad.	Endorsement of
LICENSED BY ENDORSEMENT		
University of Michigan Medical School	(1930)	N. B. M. Ex.
Columbia University College of Phys. and Surgs.	(1929)	N. B. M. Ex.
Woman's Medical College of Pennsylvania	(1930)	N. B. M. Ex.

District of Columbia Reciprocity Report

Dr. W. C. Fowler, secretary, Commission on Licensure, reports ten candidates licensed by reciprocity with other states from Jan. 30 to Dec. 9, 1931. The following colleges were represented:

College	Year Grad.	Reciprocity with
LICENSED BY RECIPROCITY		
College of Medical Evangelists	(1915) Maryland, (1917)	California
University of Colorado School of Medicine	(1903)	Maryland
George Washington University Medical School	(1928)	Maryland
Baltimore University School of Medicine	(1896)	Maryland
College of Physicians and Surgeons of Baltimore	(1893)	New York
Maryland Medical College, Baltimore	(1912)	Maryland
University of Michigan Medical School	(1922)	Michigan
Medical College of Virginia	(1929)	Virginia
Osteopath		Iowa

Montana October Report

Dr. S. A. Cooney, secretary, Montana State Board of Medical Examiners, reports the written examination held at Helena, Oct. 6-7, 1931. The examination covered 10 subjects and included 50 questions. An average of 75 per cent was required to pass. Five candidates were examined, all of whom passed. Two physicians were licensed by reciprocity with other states. The following colleges were represented:

College	Year Grad.	Per Cent
PASSED		
Emory University School of Medicine	(1926)	83.9
Rush Medical College	(1931)	85.7
University of Illinois College of Medicine	(1931)	85.3
University of Michigan Medical School	(1930)	84.1
University of Oregon Medical School	(1931)	83.9

College	Year Grad.	Reciprocity with
LICENSED BY RECIPROCITY		
University of Michigan Medical School	(1926)	Michigan
Columbia University College of Phys. and Surgs.	(1905)	Iowa

Book Notices

History of Medicine in the United States. By Francis R. Packard, M.D. In two volumes. Cloth. Price, $12 per set. Pp. 1323, with 103 illustrations. New York: Paul B. Hoeber, Inc., 1931.

Previous to the publication of this contribution the foremost history of medicine in America was the book by Mumford. The story of medicine in America is some 200 years old. Much of our development is the reflection of work done abroad, but there has been a melting pot of science as well as a melting pot of races and nations—to the advantage of medicine. Dr. Packard has not attempted an evaluation of the recent development of foundations for research and great institutes for medical education. His consideration practically ends with the beginning of the present century.

Quite recently many of the states have been developing individual histories which are exceedingly valuable. These are reflected in Dr. Packard's book. In his first volume he considers medical legislation, education and hospitals during the earliest period, the medical profession in the war for independence and the history of the medical department of the army up to the close of the Spanish-American War. The second volume provides a history of the medical department of the United States Navy and of the medical schools founded during the first half of the nineteenth century. The author then outlines the development of medical practice and education in some of the states and concludes with chapters on foreign influences in American medicine, notable events in American medicine and surgery, and the beginnings of specialism in America. There are numerous appendixes of interest, including particularly reprints of early lectures and documents, a list of the surgeon generals of the United States Army, a discussion of the ether controversy, and a record of the *American Journal of the Medical Sciences* and the *Boston Medical and Surgical Journal*. There are sections on homeopathic medical colleges and on women in medicine, on physiomedical and electric colleges, and finally a bibliography and a well prepared index.

It is safe to say that what Dr. Packard has here contributed is excellent. The reader should not, however, consider the book as in any sense of the word an adequate history of medicine in the United States. There is so much missing in so many fields that space is not available to begin to list what is absent. For instance, the section on the history of medicine in Illinois, beginning on page 850, is inadequate from numerous points of view. If Illinois, which has had so much consideration by medical historians, is so poorly handled, other states must suffer even more. The part played by the American Medical Association in the development of American medicine has either been intentionally minimized or else is sadly unappreciated by Dr. Packard.

These two volumes may therefore be considered a collection of interesting notes on the history of medicine in America, reflecting Dr. Packard's personal interests, and beyond that in no sense of the word an adequate record of events from the point of view either of completeness or of historical perspective. It is idle to speculate as to the reasons for the failure of Dr. Packard to provide an adequate story, but the fault must lie in a failure to appreciate American medicine as a whole. Dr. Packard himself recognizes in his preface the unevenness of the material and the numerous omissions. However, in view of this recognition it might have been better to reflect in the title of the work its actual character as a collection of essays rather than a history.

Opuscula selecta Neerlandicorum de arte medica. Fasciculus nonus quem curatores miscellancorum quae vocantur Nederlandsch Tijdschrift voor Geneeskunde. Leeuwenhoek. Collegerunt et ediderunt Amsterdam Sumptibus Societatis. Cloth. Pp. 145, with illustrations. Amsterdam: Sumptibus Societatis, 1930.

In the preface, G. van Rijnberk describes how it has come about that certain of the earliest scientific letters of van Leeuwenhoek, the great microscopist, 1632-1732, which were thought to be lost, at length came to light. E. C. van Leersum reviews the letters of van Leeuwenhoek, "the pioneer of the microscope," on his varied observations to the Royal Society in London. Clifford Dobell, who was the first to draw attention to the existence of the letters published in this volume, contributes a valuable historical and bibliographic notice. J. G. de Lint writes an interesting chapter about the portraits of van Leeuwenhoek, a sturdy figure, some of which are reproduced at the end of the volume. The original Dutch text and the English translation of the hitherto unpublished letters by van Leeuwenhoek forms the main part of the book. There are facsimile reproductions of several of the letters and also of drawings by their author. The book will interest greatly students of the history of medicine and of science in general. It is an appropriate and important addition to the valuable series of historical textbooks in which it is published.

Industrial Hygiene for Engineers and Managers. By Carey P. McCord, M.D., Medical Director, The Industrial Health Conservancy Laboratories, Cincinnati, Ohio. Assisted by Floyd P. Allen, M.D. Cloth. Price, $5. Pp. 336, with 63 illustrations. New York: Harper & Brothers, 1931.

As stated in the introduction to this extraordinarily fine contribution to the subject of occupational disease, the application of adequate industrial measures is believed to be now limited to less than 5 per cent of this country's industries. Such knowledge as is now available has grown out of contributions by various governmental, social and trade bodies. The average physician has some general knowledge of the subject, but his knowledge is seldom systematized so as to be directly applicable to any given industry. The material contained in the contribution by Dr. McCord and Allen has been the basis of a course given to students in the Engineering College of the University of Cincinnati. Beginning with the introduction, which outlines the character of the problem, sections are devoted to emergency aid for the industrially injured, and to infection and disinfection. Then come several classifications of occupational diseases, with a long list of hazards presented in alphabetical order, and a long list of trades and industries in which occupational diseases may arise. The material is also listed according to the hazards and occupations affected. Further chapters concern the sanitation of factories, industrial fatigue, physical examinations, the conduct of a medical department, questions of compensation, diet, the utilization of the handicapped, and the work of mutual benefit associations. The physician will find no quarrel with this book from the point of view of recommendation of socialized schemes or of tendencies in industries leading to the breaking down of the relationship between the physician and his patient. He will find instead a vast amount of information briefly and succinctly presented by men who have specialized in the field concerned and who write with authority. An extensive index makes the book especially useful to the average reader.

Praktikum der physiologischen Chemie. Teil I. Fermentmethoden. Von Peter Rona. Second edition. Paper. Price, 18.60 marks. Pp. 420, with 107 illustrations. Berlin: Julius Springer, 1931.

This book is devoted solely to ferments and particularly to the ferments found in the animal body. It is especially valuable for workers and investigators in the field of fermentation. Methods of preparation and the determination of activity are treated quite thoroughly. The book has an adequate index. The language is simple, the style clear and direct. The literature quoted is not voluminous but is carefully selected. The volume is divided into two parts, general and special. Under general properties the author discusses preparation, adsorption, elution or the freeing of ferments from combination, dialysis, electrodialysis, conservation, measurement of activity, specificity, influence of temperature and reaction, activating and paralyzing agents. Details of chemical and physical processes and methods are described clearly and accurately, so that the laboratory worker will have little difficulty in carrying out the methods. The special part is devoted to the methods of preparing and studying the action of lipases, esterases, carbohydrate splitting ferments, glycolysis, pepsin, chymosin, trypsin, enterokinase, erepsin, nucleases, amidases and catalases. Each subject is fully treated; for example, two leading methods are given for the preparation of pepsin, and fourteen methods for the estimation of its activity. The description of such physical apparatus as the polariscope, refractometer and colorimeter is complete—perhaps more so than necessary; yet an examination of the book as a whole gives the impression of compactness, completeness, selectiveness and reliability.

Successful Living in This Machine Age. By Edward Albert Filene and Charles Wesley Wood. Cloth. Price, $2.50. Pp. 274. New York: Simon & Schuster, Inc., 1931.

Mr. Edward A. Filene has for years been noted as a public spirited citizen, a successful merchant, and a man who believes that the elementary ideas which make for successful merchandising can be equally applied in other fields. He was instrumental in aiding Lincoln Steffens in the investigation of Boston politics, made many years ago. He has also been a member of the Committee on the Costs of Medical Care since its foundation, and is indeed credited with the idea behind this committee and its work. He himself established the Twentieth Century Foundation, which has aided many important social endeavors.

In his new book, Mr. Filene shows the value of organization for lowering the cost of overhead and for distribution of the expense. Some years ago he contributed to The Journal a paper urging the formation of medical guilds, which were essentially groups, in the belief that group practice would take care of the problem of providing good medical service to all at a price they could afford to pay. In his present book he carries this idea further, but apparently his experience on the Committee on the Costs of Medical Care has made him somewhat doubtful of the certainty that the group is the answer to the problem of medical costs. Mr. Filene writes succinctly, with humor, and his views are interesting.

Studien zur Entwicklung der menschlichen Lungenphthise: II. Phthisische Entwicklungen aus den Reihen des Frühinfiltrates und des frühen phthisischen Nachschubes. Von Hermann Braeuning und Franz Redeker. Nr. 39, Tuberkulose-Bibliothek. Beihefte zur Zeitschrift für Tuberkulose. Herausgegeben von Prof. Dr. Lydia Rabinowitsch. Paper. Price, 22 marks. Pp. 112, with 100 illustrations. Leipzig: Johann Ambrosius Barth, 1931.

The book consists of case reports, serial x-ray films and carefully studied comments on the earliest film signs of focal development in the tuberculous. The work deals at length with the subject of successive infiltrations (Schuebe). An interesting series of roentgenograms demonstrates the progress of the process from the minimal to the grosser lesion. The subject is more easily understood if recourse is had to the first report on it by the same authors. The writers raise the question Can one differentiate between a really new focus and a perifocal inflammatory reaction of an old focus which is buried, so to speak, in an infiltrated area? Arguing the matter, they say that if one accepts the views of Romberg it is easy to recognize that early infiltrations may arise from previously existing small isolated foci. It is quite another thing, say the authors, whether early infiltrations, the term being used in its strictest sense, can be recognized roentgenographically when they are of pin-head size; this presupposes that the disease process is located in hitherto healthy lung. This is an important and practical question. The authors are candid and frank in their statements, acknowledging the difficulty of determining the points at issue. They admit that their long study has not given them incontrovertible and typical examples from which conclusions may be drawn. The work done proves once more the immense value of serial x-ray plating, carefully done and studied. It also shows the value of constant control of tuberculosis workers. Of these, the authors believe, far more become infected than is generally believed. The little work appears to be of unusual importance. It should be checked by competent roentgenologists.

Lane Lectures on Experimental Pharmacology and Medicine. By Rudolf Magnus. Stanford University Publications, University Series, Medical Sciences, Volume II, No. 3. Paper. Price, $1. Pp. 108, with 42 illustrations. Stanford University: Stanford University Press, 1930.

This monograph contains three of the five Lane medical lectures that were to have been delivered in 1927 by the late Professor Magnus. Only these three lectures were completed at the time of the sudden death of Magnus in Pontresina, Switzerland. The three lectures concerned the experimental pathology of the lungs, choline as an intestinal hormone, and the physiologic *a priori*. The last lecture is partly an interesting philosophic dissertation and partly a discussion of Magnus's work on the labyrinth. The first two lectures deal with favorite experimental problems which Magnus and his pupils investigated with great skill. The work on lungs appears to have been stimulated by some experiences of Magnus with poison gases during the World War. The work with choline was suggested by a chance observation of one of his assistants, who showed that a saline solution in which was bathed a piece of intestine acquired the property of stimulating a normal piece of intestine. Studies of this phenomenon ultimately showed the practical usefulness of choline as a remedial measure in intestinal paresis and paralytic ileus. Each lecture has a list of references. Besides the lectures by Magnus, the monograph contains a biographic sketch of Magnus by H. H. Dale of London, a short preface by P. J. Hanzlik of San Francisco, a list of Magnus's works by deKleijn of Utrecht, and an excellent portrait of Magnus. This monograph is in a sense a memorial volume issued by Stanford University in honor of her most illustrious Lane lecturers.

The Official History of the Australian Army Medical Services in the War of 1914-1918. Volume I: Part 1. The Gallipoli Campaign. By Colonel A. G. Butler, D.S.O., V.D., B.A.; Part 2. *The Campaign in Sinai and Palestine.* By Colonel R. M. Downes, C.M.G., V.D., M.D.; Part 3. *The Occupation of German New Guinea.* By Colonel F. A. Maguire, D.S.O., V.D., M.D., and Captain R. W. Cilento, M.D., B.S., D.T.M.& H. Cloth. Price, $5.25. Pp. 873, with 228 illustrations. Melbourne: Australian War Memorial, 1930.

Australia was not responsible for the complete organization of any military force during the World War apart from the expedition to New Guinea. The policy of the Australian medical units was that of the British forces with whom they were associated. This volume is a presentation of the experiences of the Australian Army Medical Service. It is divided into three parts: (1) the Gallipoli Campaign, (2) the Campaign in Sinai and Palestine, and (3) the Occupation of German New Guinea. The administrators of the medical service of the Australian forces were almost without exception civil practitioners who suddenly became responsible for the medical administration of a large military organization. The editor shows the difficult problems that confronted officers who had so little time to prepare for extensive military work. In addition to the Australian records, England made available to the editor records of the British army, which together make the history complete. This and the succeeding volume of the history of Australian medical forces will be unique in that it will show historically the details of a close and successful cooperation between two different medical services. The problems of the Australian medical officers are exhibited in the order in which they arose. The various chapters discuss the evolution of the Australian army medical service, mobilization of the A. I. F.; the first convoy; strategic preparations; the landing at Gaba Tepe; the expeditionary base; disease at Gallipoli; supreme effort: Sari Bair; the disease debacle; the rush of sick; Lemnos; the evacuation; pathology; the service in Australia; defense of the Suez Canal; health in the desert; the first Amman raid in the Palestine campaign; the dash to Damascus; the advance through Syria; the capture of Rabaul.

A Thousand Marriages: A Medical Study of Sex Adjustment. By Robert Latou Dickinson and Lura Beam. Foreword by Havelock Ellis. Medical Aspects of Human Fertility Series. Issued by the National Committee on Maternal Health, Inc. Cloth, Price, $5. Pp. 482, with illustrations. Baltimore: Williams & Wilkins Company, 1931.

The last five years has witnessed a flood of volumes on sex and sex life. Many of the most important contributions have come from American investigators, for instance Dr. Katharine B. Davis, Dr. G. V. Hamilton and Dr. Robert L. Dickinson. The present volume includes an aspect of the subject not covered in previous communications—the physical side. Dr. Dickinson as a gynecologist was concerned not only with mental disturbances but also with the actual physical structure of his patients, which in some instances may have been the responsible factor in marital failure. He is, however, a practical psychologist and has not permitted the physical point of view to obliterate the equally important psychologic considerations. The introduction by Havelock Ellis is philosophical. The Committee on Maternal Health has cooperated in the assembling of the data and the book may be considered a sound contribution to this field.

In the opening section the nature of the study is set forth; then come considerations of the new bride, frigidity, passion and dyspareunia. The third section deals with adjustment, fertility, widows and the necessary normal controls. Then comes the opposite group with the headings maladjustment, fear, substitution and compensation, conflict of education, and separation and divorce. The last two chapters are devoted to passion and frigidity and to a summary of the significant facts brought out by the study. In an appendix there appears an outline for a suitable case history in this field, a proper development of such a case history and a topical analysis of the points of the various chapters.

The book is based on approximately a thousand case histories, which are cited in sufficient detail to teach the lessons they are planned to teach. Space is not available in a book review even to outline the important facts brought out in this volume. Indeed, most of the points are probably familiar to every physician. The consideration is good and the demonstration of the relationship of these physical and sexual factors to successful marriage should be well established in the physician's mind.

Ergebnisse der Kreislaufforschung. Monographien aus dem Gebiete beschreibender, experimenteller und klinischer Kreislaufforschung. Herausgegeben von Dr. Med. Bruno Kisch, ord. Professor der Physiologie an der Universität Köln. Band I: Die reflektorische Selbststeuerung des Kreislaufes. Von Prof. Dr. Med. Eberhard Koch, Abteilungsvorstand am Kerckhoff-Institut in Bad Nauheim. Paper. Price, 18 marks. Pp. 234, with 44 illustrations. Dresden: Theodor Steinkopff, 1931.

This book will prove interesting and profitable reading to the physiologist and clinician interested in cardiovascular problems in health and disease. Many of the older physiologists will find it necessary to change their interpretation of many vascular and cardiac phenomena on the basis of the pressoreceptor reflexes resulting from stimulation of the aortic and carotid sinus nerves (and perhaps others distributed to other larger vessels of the arterial circulation). The reflexes are described in terms of their comparative anatomy, physiology, pathology and pharmacology. The book is well written by one who has added his share to the knowledge of the quantitative aspects of the physiologic responses discussed in the volume. A comprehensive bibliography is appended. The clinician will find the book of practical interest and significance in his daily work.

International Studies on the Relation Between the Private and Official Practice of Medicine with Special Reference to the Prevention of Disease. Volume II: Belgium, France, Italy, Jugo-Slavia, Hungary, Poland and Czecho-Slovakia. Conducted for the Milbank Memorial Fund. By Sir Arthur Newsholme, K.C.B., M.D., F.R.C.P. Cloth. Price, $4. Pp. 249. Baltimore: Williams & Wilkins Company, 1931.

The first volume of the series called "International Studies" dealt with the Netherlands, Scandinavia, Germany, Austria and Switzerland. The present volume is concerned with Belgium, France, Italy, Yugoslavia, Hungary, Poland and Czechoslovakia. The second volume follows the plan of the first. It considers the nature of health administrations in the various countries, the different social organizations involved and the nature of the medical profession, and discusses the uses of insurance to provide good medical care for all. With a background of much experience in this field, Dr. Newsholme is not moved to ecstacy by every social scheme. As a scientist he views what he sees objectively. Any one wishing a world survey of progress in this field and in health management will find in this series of volumes the best assembling of data thus far available. The third volume will concern conditions in England and Wales, Scotland and Ireland, and a final volume will summarize the subject and make suggestions for further progress.

The Prevention of the Diseases Peculiar to Civilization. By Sir W. Arbuthnot Lane, Bart, C.B., Consulting Surgeon to Guy's Hospital and to the Hospital for Sick Children, Great Ormond Street. Paper. Price, 2/-. Pp. 99, with 44 illustrations. London: Faber & Faber, Ltd., 1931.

This volume was first published in 1929 and is now issued in a cheap edition for general use. In the field of public health education, Sir William Arbuthnot Lane has been a pioneer and merits credit for his service notwithstanding his promotion of occasional departures from scientific medicine. The book deals largely with the fundamental laws controlling the operation of the human body and promotes the view that nature's method is best. Of course, one has to interpret nature's method and to realize that modern civilized man lives in conditions that in no way resemble what may be natural conditions. Unfortunately, in his health teachings Sir William Arbuthnot Lane has also concerned himself with the promotion of various proprietary foods in which his health society seems to have some commercial interest and his views must be read, therefore, with the reservations that such a connection naturally invites.

Fundamentals of Health: The Human Organism, Its Development and Conservation. By T. Bruce Kirkpatrick, Associate Professor of Physical Education, Columbia University, and Alfred F. Huettner, Associate Professor of Biology, New York University. Cloth. Price, $3.80. Pp. 576, with 100 illustrations. Boston: Ginn & Company, 1931.

It is quite difficult to arouse interest in the subject of hygiene and health in college people. Textbooks that have previously been used for instruction in these fields have been so devoid of interest that the result of their study has only been the production of apathy and boredom, if not outright hostility. These authors have attempted to include material that would be more interesting to the student, and their book has been planned mostly from this standpoint. They noted that material dealing with heredity, man's biologic background and embryonic development have aroused the greatest interest of the student, and for this reason the first portion of the book is devoted to these subjects. Then follow chapters on foods, nutrition, muscles, respiration, nervous system, sex reproduction, the internal secretions, and public health. The material is clearly presented and is well illustrated. A sensible attitude has been taken toward matters under dispute and the best of authorities are quoted. This volume should establish itself quickly as a valuable textbook for the teaching of health.

Contribuição ao estudo da biologia do "Strongyloides stercoralis." A' margem de um caso raro, provavelmente inédito, de estrongyloidose. Por Heitor Praguer Fróes. These de concurso á cathedra de medicina tropical na Faculdade de Medicina da Bahia. Paper. Pp. 123, with 21 illustrations. Bahia: A Nova Graphica, 1930.

The author has published an extended account of his studies on the larvae of Strongyloides stercoralis discovered in the pericardial fluid and the pleural exudate of a native of Bahia, Brazil. He discusses in successive sections the classification, life cycle, means of infection, and pathologic results of the invasion of the parasite. An important item is his list of the occurrence of such larvae in unusual locations in the body of the host. While the author has been able to contribute little that is new, the account is unusually complete and accurate. It will serve as a most valuable summary of knowledge for all workers desiring such an account in the Portuguese language.

One Hour of Medical History. Compiled by Benjamin Spector, M.D. Boards. Price, $1. Pp. 88, with portraits. Boston: Beacon Press, Inc., 1931.

This volume, prepared by students in Tufts College Medical School, is in the form of a pageant in which students, representing various famous figures in medical history, speak of the work of these noted men. The fact that students of appropriate nationalities were chosen adds to the interest of this unusual item.

Human Heredity. By Erwin Baur, Eugen Fischer and Fritz Lenz. Translated by Eden and Cedar Paul from the third German edition. Cloth. Price, $8. Pp. 734, with 181 illustrations. New York: Macmillan Company, 1931.

This English translation of one of the most authoritative works available in Germany is made from the third German edition, published in 1927. During the course of preparation, revisions and additions were supplied by the authors, so that this new edition may be considered complete and down to date. The book is divided into sections for which the various authors are responsible. The general theory of variation and heredity is discussed by Dr. Baur; racial differences in mankind are discussed by Fischer; the last three sections of the book, developed by Lenz, deal with morbific factors in heredity, methods for the study of human heredity, and the inheritance of intellectual gifts.

More and more consideration is being given in these times to the importance of constitution and heredity for the health, longevity and happiness of mankind. Physicians are fortunate, therefore, in having available such a systematic and sound consideration of the subject. The ability of the translators to interpret correctly and in good English writings originally in German has been demonstrated in many previous volumes for which they have been responsible. This book may be highly recommended to every medical reader who desires to be well grounded on the important relationships of constitution and heredity to the problems of disease. Especially to be recommended is an excellent index, which is an essential portion of this work.

Medicolegal

Weight of Evidence Required to Prove Malpractice

(Matteson v. Thiel (Wash.), 298 P. 333)

Mrs. Matteson was subjected to an abdominal operation in 1915, and two others for the same trouble, one in 1922 and another in 1923. They were all performed by physicians other than the defendant in this case. In June, 1927, the defendant operated on her for the same condition for which the previous operations had been done. After this operation she suffered pain in the lower left abdominal region until June, 1929, when another physician removed a surgeon's needle from the region in which the pain had been. She and her husband thereupon sued the defendant, blaming him for having left the needle in her abdomen.

The plaintiff testified that prior to the operation done by the defendant she had had no pain such as that she suffered after he operated and that she had no such pain after the needle was removed. The needle that was removed was admitted by the defendant to be such a needle as he and other surgeons commonly use in the operation that was performed, but he denied that he had left the needle in his patient's abdomen. The testimony on behalf of the plaintiff tended to show, however, that all needles used and available in the three operations prior to the one performed by the defendant were accounted for, and that not one of them was left in her body. In the course of the trial, on request of the defendant-physician, the court instructed the jury as follows:

> You are instructed that where circumstantial evidence is relied upon to establish a cause of damage or injury, mere circumstances in a case of this kind are not sufficient to establish a case against the defendant, unless they exclude every reasonable hypothesis of other operating surgeons having inadvertently left the needle in the plaintiff. If the circumstances do not exclude such an hypothesis as unreasonable, your verdict must be for the defendant surgeon.

Judgment was rendered in favor of the defendant-physician, and thereupon the plaintiffs moved for a new trial. They based their motion in part on the instruction stated above, which they claimed was erroneous. They convinced the court of its error, and the court in granting a new trial, solely because of having given Instruction No. 6, set forth above, said:

> It, in effect, advises the jury that where circumstantial evidence is relied upon, the plaintiff cannot recover unless the circumstances exclude every reasonable hypothesis of other operating surgeons having, inadvertently, left the needle in the plaintiff, or, in other words, that the circumstantial evidence must prove the case beyond a reasonable doubt. In several other instructions the rule was correctly stated that the burden was upon the plaintiff to prove its case by a preponderance of the evidence. Instruction No. 6 is inconsistent with this rule.

From the order of the trial court granting the plaintiffs' motion for a new trial, the defendant-physician appealed to the Supreme Court of Washington.

In the opinion of the Supreme Court, the remarks of the trial judge set forth above correctly described the situation. The defendant-physician, however, in arguing in support of his appeal, contended that even though Instruction No. 6 was in itself erroneous, the error had been cleared up by other instructions. The Supreme Court, however, regarded the fact that certain of the instructions given by the trial court were correct as insufficient to justify it in reversing the order of the trial court granting a new trial, citing in support of its position previous cases in which the Supreme Court itself had held that where the instructions are irreconcilable and set up for the guidance of the jury contradictory rules, it is impossible for the court to say which instruction the jury followed in arriving at its verdict. The Supreme Court therefore affirmed the order of the trial court granting the plaintiffs' motion for a new trial.

Wills: Presumption as to Testator's Sanity.—In determining the mental status of a testator it will be presumed that he was sane. Where a will appears to be a rational act, performed in a rational manner, this presumption and the apparently rational act amount to evidence of testamentary capacity. The fact that a testator has been adjudged incompetent to manage his property and business affairs and that a guardian had been appointed prior to the date the will was executed is evidence of incompetence which may be overcome by other evidence, showing that the testator was mentally competent at the time of the execution of his will.—*Peace v. Peace (Okla.), 299 P. 451.*

Evidence: Right of an Examining Physician to Express an Opinion Concerning a Wound.—It is the general rule, according to the court of criminal appeals of Texas, that a physician who has testified with respect to his examination of a wound may express an opinion as to its probable cause, nature, effect and consequences.—*Wharton v. State (Texas), 38 S. W. (2d) 72.*

Workmen's Compensation Acts: Jurisdiction over Physicians' Claims.—Under the workmen's compensation act of California, proceedings by a physician or by a hospital before the industrial accident commission to recover the value of services rendered an injured employee are subordinate to proceedings by the employee to recover compensation. They cannot be considered independently by the industrial accident commission.—*Pacific Employers' Ins. Co. v. French (Calif.), 298 P. 23.*

Workmen's Compensation Acts: Liability of Employer for Malpractice of Physician.—An employer furnishing medical aid to an injured employee is bound only to exercise reasonable care in selecting his physician. If he exercises that care, he is not liable for his physician's negligence. Where a physician, properly selected by an employer, ordered that an injured employee be taken by automobile to a hospital some fifty miles away, and prescribed the treatment to be administered on the journey by a layman accompanying the patient, the employer was held to be not liable for the employee's death from loss of blood before reaching his destination.—*Stanley's Adm'r v. Duvin Coal Co. (Ky.), 36 S. W. (2d) 630.*

Evidence: Admissibility of Coroner's Verdict.—The verdict of a coroner may be received in evidence to prove that death occurred, but not to show the cause of death.—*Childers v. National Life and Accident Ins. Co. (Mo.), 37 S. W. (2d) 490.*

Society Proceedings

COMING MEETINGS

Alabama, Medical Association of the State of, Mobile, April 19-22. Dr. D. L. Cannon, 519 Dexter Avenue, Montgomery, Secretary.
American Association for Thoracic Surgery, Ann Arbor, Mich., April 18-20. Dr. Duff S. Allen, 3720 Washington Blvd., St. Louis, Sec'y.
American Association of Anatomists, New York, March 24-26. Dr. George W. Corner, University of Rochester School of Medicine, Rochester, N. Y., Secretary.
American Association of Physical Anthropologists, Washington, D. C., March 21-23. Dr. D. J. Morton, 632 W. 168th St., New York, Sec'y.
American College of Physicians, San Francisco, April 4-8. Mr. E. R. Loveland, 133 South 36th Street, Philadelphia, Executive Secretary.
Arizona State Medical Association, Globe, April 21-23. Dr. D. F. Harbridge, 407 Goodrich Building, Phoenix, Secretary.
Arkansas Medical Society, Little Rock, April 5-7. Dr. William R. Bathurst, 814 Boyle Building, Little Rock, Secretary.
Medical Society of the Missouri Valley, Omaha, Neb., April 5-7. Dr. Joseph D. McCarthy, 107 South 17th Street, Omaha, Secretary.
Mississippi State Medical Association, Jackson, April 12-14. Dr. T. M. Dye, Clarksdale, Secretary.
North Carolina, Medical Society of the State of, Winston-Salem, April 18-20. Dr. L. B. McBrayer, Southern Pines, Secretary.
South Carolina Medical Association, Columbia, April 19-21. Dr. E. A. Hines, Seneca, S. C., Secretary.
Tennessee State Medical Association, Memphis, April 12-14. Dr. H. H. Shoulders, 706 Church Street, Nashville, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to The Journal in continental United States and Canada for a period of three days. Issues of periodicals are kept on file for a period of five years only. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending, but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

Annals of Otol., Rhinol. and Laryngology, St. Louis

40: 987-1306 (Dec.) 1931

*Evaluation of Caloric and Rotation Tests. L. Fisher, Philadelphia. —p. 987.
Osteomyelitis of Skull: Osteogenetic Processes in Repair of Cranial Defects. A. C. Furstenberg, Ann Arbor, Mich.—p. 996.
Rhinosporidium. W. L. Hanson, East St. Louis, Ill.—p. 1013.
Congenital Atresia or Obstruction of Nasal Air Passages. V. P. Blair, St. Louis.—p. 1021.
Scientific Aspects of Work of American Federation of Organizations for the Hard of Hearing. E. P. Fowler, New York.—p. 1036.
Comments on Changes Occurring in Medical Practice: President's Address. C. H. Bowers, Los Angeles.—p. 1049.
Microscopic Observations of Eustachian Tube. Dorothy Wolff, St. Louis. —p. 1055.
Otolaryngologic Aspects of Commercial Aviation. R. A. Fenton, Portland, Ore.—p. 1070.
*Prognostic Significance of Sinusitis in Children. L. Richards, Boston. —p. 1076.
Management of Fractured Nose. E. F. Risdon, Toronto.—p. 1094.
Diagnosis and Conservative Treatment of Sphenoid Suppuration. W. A. Wagner, New Orleans.—p. 1099.
*Mastoiditis in Infants: Review of Literature with Summary of Cases Studied. W. H. Johnston, Santa Barbara, Calif.—p. 1115.
Endotracheal Anesthesia: New Technic. A. E. Guedel, Beverly Hills, Calif., and R. M. Waters, Madison, Wis.—p. 1139.
Acute Generalized Bronchiolectasis with Bullous Emphysema. O. McGillicuddy, Denver.—p. 1146.
Progressive Osteomyelitis of Cranial Bones Secondary to Suppurative Nasal Sinusitis. C. F. Yerger, Chicago.—p. 1164.
Streptothrix Infections of Mastoid, Middle and External Ear. R. C. Martin, San Francisco.—p. 1171.
Decompression of Facial Nerve for Postoperative Facial Paralysis: Two Cases. J. M. Smith, New York.—p. 1179.
Development of Head Lights and Introduction of a New Light. P. Good, Chicago.—p. 1184.

Evaluation of Caloric and Rotation Tests.—Fisher states that in the hands of the most expert examiners the caloric and rotation tests serve to diagnose the causes of vertigo in general, to differentiate between supratentorial and subtentorial lesions in doubtful neurologic cases, and to aid in the localization of intracranial lesions. However, even in the hands of those only moderately expert the test can serve in a most definite manner to ascertain exactly the degree of viability of the labyrinth, to establish or rule out the existence of cerebellopontile angle lesions, and to detect early an actual or threatened intracranial invasion in cases of middle ear suppuration, acute or chronic.

Prognostic Significance of Sinusitis in Children.—According to Richards, sinusitis in children has become during the past ten years a well recognized entity, underlying local nasal symptoms and contributing to systemic disturbances in a relationship formerly never dreamed of. Certain types of sinusitis are amenable to local and, particularly in the acute cases, surgical treatment. Many cases of chronic sinusitis will defy all local measures, whether surgical or medical, and can be relieved only by investigation of the underlying physiologic and biochemical dysfunctions that exist in the individual patient. Allergic disorders will be found to play an important part in this connection. In general, the existence of nasal symptoms will be found to parallel the existence of a pathologic state in the sinus as evidenced by roentgen examination. The author believes that only by study and investigation with every clinical and laboratory facility at hand, principally in a hospital, can adequate study of these conditions be satisfactorily carried out.

Mastoiditis in Infants.—In his paper Johnston includes reports from observers in every section of this country and Europe, and with few exceptions the impression was that the so-called gastro-intestinal-mastoiditis syndrome in infants does exist. The most important objective observations are in the ear drum and canal. The most often recorded are drab or gray drum with loss of normal luster, fulness of Shrapnell's membrane, a sagging of the posterosuperior canal wall and obliteration of normal landmarks; in many cases a well developed suppurative otitis media is found at the first examination. Postauricular changes are most unusual. The author believes that all infants with a severe gastro-intestinal disturbance should have repeated ear examinations by a trained otologist. There is less danger to hearing in postauricular drainage than there is in often repeated myringotomies. No mastoid should be operated on unless there are definite objective manifestations in the middle ear and tympanic membrane. The surgical treatment should be done as rapidly as possible, and nature's attempt at repair should not be hindered by curetting away mucous membrane from the antrum. In view of the anatomic conditions found in the infant's ear—a relatively large eustachian tube, the presence in the nasopharynx of infective material and the position assumed for almost twenty-four hours a day—it is reasonable to deduce that a middle ear and mastoid infection would be the most probable condition produced. Regardless of whether the middle ear and mastoid infection is coincidental with or the etiologic factor in gastro-intestinal disturbances, it is a most important factor in the final outcome of the case.

Archives of Internal Medicine, Chicago

48: 1065-1244 (Dec.) 1931

*Sympathetic Activity in Certain Diseases, Especially Those of Peripheral Circulation. W. J. M. Scott and J. J. Morton, Rochester, N. Y.—p. 1065.
Electrocardiographic Studies of Effect of Anaphylaxis on Cardiac Mechanism. L. H. Criep, Pittsburgh.—p. 1098.
*Subacute Meningococcal Endocarditis. N. B. Gwyn, Toronto.—p. 1110.
*Effects of Exercise on Experimental Cardiac Infarction. D. C. Sutton and M. D. Davis, Chicago.—p. 1118.
Primary Carcinoma of Lungs: Pathognomonic Signs in Diagnosis. J. Polevski, Newark, N. J.—p. 1126.
*Use of Amidopyrine in Rheumatic Fever. M. P. Schultz, New York. —p. 1138.
Pigment Metabolism and Destruction of Blood in Addison's (Pernicious) Anemia. R. F. Farquharson, H. Borsook and A. M. Goulding, Toronto.—p. 1156.
*Brucella Infection of Brief Duration: Case. H. R. Leavell, Mary Poston and H. L. Amoss, Durham, N. C.—p. 1186.
Endermic Reaction in Brucella Infections. H. R. Leavell and H. L. Amoss, Durham, N. C.—p. 1192.
Peptic Ulcer: Association with Pulmonary Tuberculosis. M. Sturtevant and L. L. Shapiro, New York.—p. 1198.
Congestive Heart Failure: XI. Effect of Digitalis on Dyspnea and on Ventilation of Ambulatory Patients with Regular Cardiac Rhythm. T. R. Harrison, J. A. Calhoun and F. C. Turley, Nashville, Tenn.—p. 1203.
*Mechanisms of Contraction and Evacuation of Gallbladder. L. A. Crandall, Jr., Chicago.—p. 1217.
*Prophylaxis of Postoperative Pneumonia by Oral Hygiene: Preliminary Report. S. W. A. Franken, New York.—p. 1225.
Azotemia with Normal Kidneys Found Post Mortem: Possible Cause: Low Blood Pressure After Operation. T. S. Evans, New Haven, Conn.—p. 1231.
*Effect of Ingestion of Water and Dextrose Solution on Emptying Time of Normal Stomach. H. H. Kasabach, New York.—p. 1237.

Sympathetic Activity in Certain Diseases.—Scott and Morton call attention to the fact that pioneers have recently opened up important possibilities in the application of anatomic and physiologic knowledge of the sympathetic nervous system to several clinical syndromes. For the achievement of sound progress in this interesting field there is now needed the establishment of criteria by which to measure the sympathetic activity in the various systems. The effect of the temporary interruption of the extrinsic nerve supply to the large bowel by spinal anesthesia is offered as an index of the amount of sympathetic inhibition present in megacolon. For vascular diseases of the extremities, a simple, systematic test is outlined that distinguishes the effects of spasm and of occlusion. The vasoconstrictor stimuli to the area studied are interrupted by anesthesia, the effect of which on the surface temperature is compared with the similar response in normal persons. The authors have established the normal levels for spinal, general and conduction block anesthesia. In an individual case, if anesthesia is not accompanied by elevation of temperature in the cool distal part of the extremity, occlusion without spasm is present; if the skin temperature reaches the normal vasodilatation level, sympathetic vasoconstriction is responsible for the circulatory symptoms, and if the elevation is definite but not to this level, both occlusion and spasm participate. The difference between the highest temperature obtained and the normal vasodilatation level has been termed the occlusion index, as it measures the effect of organic obstruction to the peripheral circulation. Nerve block anesthesia is particularly useful in this vasomotor test on account of its simplicity and its freedom from discomfort. In doubtful or borderline cases its results should be checked with those of spinal or of general anesthesia. By these methods, valuable information in regard to the nature and the treatment of various types of vascular disease in the extremities is obtained. In the purely occlusive group, some compensatory mechanism releases the collateral and terminal vessels from vasoconstriction when the local circulation is seriously reduced. This does not obtain in the spastic group. The treatment for these two groups should be along radically different lines. The principle of treatment for purely occlusive disease is the obtaining of a more peripheral distribution of the reduced amount of blood available, while in spastic disease the treatment should be directed toward an augmentation of the local circulation by overcoming sympathetic vasoconstrictor spasm. Particularly valuable methods are hyperthermia, which produces temporary vasodilatation, sympathetic ganglionectomy for permanent effects, and interruption of the peripheral nerves in cases in which ganglionectomy is desirable but contraindicated by the patient's condition.

Meningococcal Endocarditis.—Gwyn reports the case of a woman who for eight months showed symptoms and physical signs customarily associated with infection of the heart valves by Streptococcus viridans—subacute bacterial endocarditis. Blood cultures in the last two weeks of the illness were positive for meningococci. Death took place as a result of invasion of the brain and spinal cord by the meningococci. The observations at necropsy agreed closely with those described as occurring in association with subacute bacterial endocarditis. Meningococci were recovered at necropsy from the meninges only. The lesions in the heart and kidney as described were apparently in accordance with those observations recorded at necropsy in cases of subacute bacterial endocarditis.

Exercise and Cardiac Infarction.—Sutton and Davis noted that a rest period of six days after infarction resulted in a small, well contracted scar without thinning of the ventricular wall in one dog. In four other dogs, exercise, within three days after operation, resulted in thin scars with aneurysmal bulging. Although there was some variation in the roentgen silhouette from time to time, it was noted that the final average did not show any evidence of hypertrophy or of dilatation. Adhesive pericarditis did not cause hypertrophy.

Amidopyrine in Rheumatic Fever.—According to Schultz, amidopyrine has been used widely as an effective antipyretic and analgesic in a variety of diseases. Excepting the results in typhoid, experience indicates that amidopyrine may be employed in daily doses of at least 3 Gm. without provoking symptoms of toxicity. Instances of idiosyncrasy are less frequent than with many other drugs of this type. In rheumatic fever it has been found effective in patients who are not relieved by other drugs or who are unable to tolerate them in therapeutic doses; and total daily doses of less than 2 Gm. have been found adequate in this disease. The feasibility of giving effective quantities without provoking untoward side actions, as well as the wide margin between therapeutic and toxic doses, renders this drug particularly valuable in the treatment of patients with rheumatic fever.

Brucella Infection.—Leavell and his associates present a case of Brucella infection with fever of seven days' duration. The possible significance of cases of such short duration is discussed, with regard to the possibility that the patients in whom they occur might subsequently become carriers and with regard to the development of cutaneous hypersensitiveness to Brucella and of agglutinins for Brucella antigens. The difficulty of diagnosing such a case by ordinary clinical methods is pointed out.

Contraction and Evacuation of Gallbladder.—Crandall found that sham feeding and direct stimulation of the vagus and splanchnic nerves in dogs, and psychic stimuli and the injection of epinephrine in human beings did not have any effect on the motility of the gallbladder. The gallbladders of dogs, when filled with brominized oil that is less than three times as viscous as bile, spontaneously empty about half of the oil in from eighteen to twenty-four hours. The gallbladders of dogs when filled with iodized oil of the usual relatively high viscosity spontaneously empty about half of the oil in from twelve to twenty-four hours when the resistance of the intramural portion of the common bile duct is eliminated. In fasting human subjects little tendency toward spontaneous emptying of the gallbladder is observed. In human subjects on a carbohydrate diet there is a tendency toward emptying of the gallbladder over a period of from twenty-four to forty-eight hours. It is concluded that the liberation of cholecystokinin by the action of fat or of acid in the intestine is the major factor concerned in the contraction and evacuation of the gallbladder that follow a mixed meal. Duodenal motility facilitates this process.

Postoperative Pneumonia: Prophylaxis.—By the use of a technic which he describes and which he has developed over the past five or six years, Franken believes that the mouth can be put into a reasonably clean, hygienic state before operation is performed. His preliminary report on 859 surgical cases in which definite preoperative oral care was given indicates a measurable drop in postoperative pneumonias. In the figures submitted, this drop amounts to two thirds, and as nothing was changed and no other measures were taken, it seems to point out the practical value of a standard preoperative oral routine. This routine can be established in any general hospital with comparatively small expenditure, but it requires constant cooperation and surveillance.

Emptying Time of Stomach.—The emptying time of the stomach was determined fluoroscopically by Kasabach in fifty healthy young college students after the ingestion of 500 cc. of water and of an equal quantity of 50 per cent dextrose solution containing a very small quantity of barium sulphate, with the subjects sitting or walking about, and in twenty cases with the subjects running continuously, between observations. The total number of experiments on the fifty students was 110. No difference was observed in the rate of emptying of dextrose solution and of water in either group. Exercise (running) seemed to produce a definite acceleration in the emptying time of the stomach. In these experiments, as exercise accelerated the emptying of the stomach it seems justifiable to conclude that dextrose solution in a palatable form could be administered to athletes before a contest in which readily available fuel is required, without fear of producing gastric retention.

Archives of Otolaryngology, Chicago

14: 699-860 (Dec.) 1931

*Tumors of Tonsil and Pharynx (357 Cases): II. Adenocarcinomas of Mixed Tumor Type (74 Cases). G. B. New and J. H. Childrey, Rochester, Minn.—p. 699.

*Id.: III. Malignant Tumors Exclusive of Adenocarcinoma of Mixed Tumor Type (220 Cases). G. B. New and J. H. Childrey, Rochester, Minn.—p. 713.

Treatment of Strictures of Oropharynx. G. M. Dorrance, Philadelphia. —p. 731.

Transillumination and Roentgenography of Maxillary Sinuses: Review. W. M. Gafafer, Baltimore.—p. 737.

*Effects of Some Drugs on Vestibular Response to Rotation. E. L. Ross, M. W. Fish and A. Olsen, Chicago.—p. 755.

*Observations Following Adenoidectomy. F. T. Hill, Waterville, Maine. —p. 775.

Relation of Nasal Sinuses to Asthma. H. G. Tobey, Boston.—p. 784.

*Postoperative Complications of Radical External Operation on Frontal Sinus. H. I. Lillie, Rochester, Minn.—p. 793.

Incidence of Acute Otitis Media in Infants and Young Children During 1930-1931: Variations in Clinical Picture. A. J. Cone, St. Louis. —p. 797.

Labyrinthine Capsule in Guinea-Pigs with Hyperparathyroidism. C. K. Gale and H. L. Jaffe, New York.—p. 815.

Adenocarcinomas of Tonsil and Pharynx.—New and Childrey believe that so-called mixed tumors, which might better be designated adenocarcinomas of mixed tumor type, are not rare in the pharynx or palate. The commonest situation is the palate. Seventy-four cases are reported. The origin of the tumor probably depends on embryonic displacement or enclaves. The tumors are formed of epithelial and connective tissue elements, and the cartilage or mucous tissue in them is not derived from epithelial cells which have differentiated to the extent that they can be recognized as epithelial cells. The tumors may occur at any age but are most common in the fourth decade. Men are affected a little more often than women. The tumors are occasionally discovered in examination of the throat. The average duration of the lesions is 4.58 years. Symptoms and signs that depend on the situation and extent of the tumor are variable and at times unusual. Most common is a sensation of irritation or soreness of the throat. Ordinarily the tumor is single, sessile, firm, circumscribed and movable, with a smooth nonulcerated surface, but variations occur in these features as do variations in size. The average diameter of the tumor when the patient comes for examination is 5 cm. Histologically, the tumor presents a complex structure formed by epithelial elements in varied arrangements on a matrix of cartilage or mucous tissue with which it is characteristically blended. The neoplasms are potentially malignant, for they may contain squamous cell epithelioma and they sometimes metastasize to the cervical lymph nodes. They should be completely removed surgically. Operation may be supplemented by diathermy, cautery or irradiation. Of seventy-four patients seen by the authors over a period of fourteen years, forty-eight were treated. Of these, 56.5 per cent had been treated previously, 32.6 per cent having had surgical treatment. Of the forty-eight patients treated, forty-one (85.5 per cent) were traced. Thirty-nine are alive an average of sixty-eight and a half months after treatment. In the group of thirty-nine living patients there are twenty-nine who have been free from symptoms for four years, fifteen for seven years, eight for nine years and four from eleven to thirteen years. Two patients died of the tumor thirty-five and a half months after examination. Twenty-six patients were not treated. Sixteen of these were traced and seven were found to be alive, but five of them still had tumors. Nine patients are known to be dead. The neoplasm was the cause of death of six of these.

Malignant Tumors of Tonsil and Pharynx.—New and Childrey report 220 malignant tumors of the palate, oropharynx and tonsil. These malignant neoplasms, which are fairly common, consist principally of squamous cell epitheliomas and are almost five times as common as all the other types of malignant tumors, with the exception of so-called mixed tumors. The squamous cell epitheliomas are principally of an active type and have been miscalled lympho-epitheliomas and transitional cell carcinomas. Sarcomas in the pharynx are principally lymphosarcomas, and these comprised 14.55 per cent of the authors' 220 cases. A few fibrosarcomas were seen and a small group of tumors of various types, including hemangio-endothelioma, melano-epithelioma, myeloma and malignant dermoid. The average age of all patients was 54.7 years. Of these, 87.7 per cent were men. The most common situations for malignant pharyngeal tumors are the soft palate and faucial pillars. Except for lymphosarcoma, malignant tumors are rarely primary in the tonsil itself. Extension of the lesions to involve neighboring structures is common, and these include the tonsil, pharynx or hypopharynx, cheek, jaw, alveolus, tongue and floor of the mouth. Metastasis is common; on the patients' admission to the clinic this was apparently present in the cervical lymph nodes in 65 per cent of the cases. Differential diagnosis is important from the prognostic and therapeutic points of view, and the only satisfactory method is by means of microscopic examination of tissue. The prognosis as to length of life, grave in most cases, is better in low grade epithelioma, fibrosarcoma and the few lesions of less active type. The prognosis is affected unfavorably by previous treatment. On 37.7 per cent of the authors' patients, operations had been previously performed elsewhere. Selection of patients for treatment is important; 36.69 per cent of all patients were treated at the clinic. Of the eighty treated patients, twenty-eight (35 per cent) had been operated on elsewhere. Treatment as carried out at the clinic consisted of surgical excision of accessible growths or of destruction of these with cautery or diathermy. Radium in the form of a plaque, in tubes or needles or as radon seeds was used to supplement the foregoing treatment for the primary lesion. The upper deep cervical lymph nodes are removed in all low grade carcinomas of the pharynx and tonsil if the prognosis of the local lesion warrants. The metastasis to the cervical lymph nodes, if from epithelioma graded 4 or from a lymphosarcoma type of growth, is irradiated with radium packs or high voltage roentgen rays, but other metastatic nodes of a less active type of growth are excised; the neck is also irradiated in such cases. Interest in the few cases of miscellaneous malignant neoplasms lies chiefly in their rarity. The results show a surprisingly large number of living patients and of three, five and seven year cures among those who were treated.

Vestibular Response to Rotation.—Ross and his associates found that the duration of nystagmus resulting from rotation was not increased by moderate doses of pilocarpine, nicotine, morphine, camphor, atropine, cocaine, nitrite, sodium bromide, picrotoxin, apomorphine, caffeine or strychnine. The duration of nystagmus resulting from rotation was decreased to a significant amount by a moderate dose of strychnine. The duration of nystagmus resulting from rotation was decreased in possibly significant amounts by sodium bromide, picrotoxin, apomorphine and caffeine. Spinal anesthesia including the body below the neck increased to a marked degree the duration of nystagmus resulting from rotation. The severing of the columns of Goll and Burdach on one side resulted in a difference in the vestibular response of the two sides, that of the side opposite being the greater. The last three observations lead the authors to believe, first, that the spinal cord exerts an inhibitory influence on vestibular reaction; secondly, that this function is located chiefly in the columns of Goll and Burdach, and, thirdly, that the action is exerted after the fibers have crossed.

Adenoidectomy.—Hill calls attention to the fact that while adenoidectomy is a simple procedure it is more difficult to achieve a clean result in that operation than in tonsillectomy. This is due to a tendency to hurry through this part of the combined operation, to the handicap of the bleeding, to dull instruments and to the difficulty of working in a blind space. Visual inspection of the nasopharynx will reveal many tags and remnants and will expedite their removal; it should be employed as a routine measure.

Radical External Operation on Frontal Sinus.—Lillie reports that in the series of 158 consecutive cases in which a radical operation was performed on the frontal sinus, postoperative complication developed in 45. Three deaths occurred, two from meningitis and one from abscess of the brain. The ordinary convalescence of a patient without complication requires seven or eight days in the hospital, and observation afterward for about the same length of time. Complications may or may not affect the ultimate results. The avoidance of complications is, of course, desirable, but there seems to be no way of determining beforehand what complication may follow operation. Thorough removal of diseased tissue is indicated. Whether the Killian operation, or some modification of it, or the Lynch type of operation is employed is determined by the nature of the disease. Skilful technic, careful consideration of the structures involved, and knowledge of the pathologic changes are highly desirable. In general, it may be said that fear of complications need not deter one from operating in cases in which operation is indicated. Good results far outnumber failures.

Archives of Surgery, Chicago

23: 889-1064 (Dec.) 1931

*Fractures of Femur: Treatment by Russell Method of Traction: Twenty-One Cases. H. J. Lund, Oakland, Calif.—p. 889.

Paget's Disease: Predisposing Factor to Osteogenic Sarcoma. B. L. Coley and G. S. Sharp, New York.—p. 918.

*Mechanism of Thrombophlebitic Edema. L. M. Zimmermann and G. de Takáts, Chicago.—p. 937.

*Immediate Contraction of Cutaneous Grafts and Its Cause. J. S. Davis and E. A. Kitlowski, Baltimore.—p. 954.

*Release of Pericardial Adhesions. H. H. Trout, Roanoke, Va.—p. 966.

Rare Congenital Deficiency of Pericardium. J. C. Watt, Toronto.—p. 996.

Metaphen as Disinfectant of Skin. J. A. Kolmer and M. J. Harkins, Philadelphia.—p. 1007.

*Discharge of Bile into Duodenum: Experimental Study. C. B. Puestow, Rochester, Minn.—p. 1013.

*Spontaneous Peptic Ulcers of Duodenum After Continued Loss of Total Pancreatic Juice. R. Elman and A. F. Hartmann, St. Louis.—p. 1030.

Relative Effect of Contraction of Diaphragm on Bronchi of Upper and Lower Lobes. I. A. Bigger, Richmond, Va., and B. Cox, Louisville, Ky.—p. 1041.

Review of Urologic Surgery. A. J. Scholl, Los Angeles; E. S. Judd, Rochester, Minn.; L. D. Keyser, Roanoke, Va.; A. A. Kutzmann, Los Angeles, and A. B. Hepler, Seattle.—p. 1046.

Fractures of Femur.—Lund has used practically all recognized methods of treatment in cases of fracture of the femur. He has obtained the best results by the use of the Russell traction apparatus. This method depends on a natural and comfortable position of the limb with a minimum of weight whereby the equilibrium of the muscle is restored; with this restoration of muscle tone and position, the fractured ends of the bone will fall into a more or less natural alinement, provided there is no interposed tissue. One must bear in mind that an absolute restoration of anatomic position is not necessary for a good functional result. The author analyzes the results that he has obtained with the Russell traction apparatus and draws the following deductions: 1. The Russell method of traction is the method of choice in treating all types of fractures of the femur from the intertrochanteric to the lower epiphyseal regions. 2. It gives satisfactory position and alinement in all cases, except when muscle is interposed between the fractured ends. 3. It gives a minimum of permanent changes in the joint as compared with other methods. 4. The average period of traction in fractures of the femur is nine weeks, of hospitalization twelve weeks and of temporary disability nine months. 5. The method is inexpensive, easy to apply and comfortable to the patient, and it materially simplifies nursing care.

Thrombophlebitic Edema.—Zimmermann and de Takáts report that ligation of the iliac and femoral veins, alone or in all possible combinations with the contralateral veins, did not produce edema in the lower extremities of dogs. A localized chemical phlebitis and periphlebitis induced with strong irritants, such as 50 per cent sodium salicylate and tincture of iodine, produced a segmental thrombosis but no edema of the limb. Removal of the iliac lymph nodes together with all the retroperitoneal fatty and areolar tissues from the bifurcation of the aorta to Poupart's ligament failed to produce edema of the limb even when the common and internal iliac veins were divided at the same time. In several animals the dissection was repeated to remove any regenerated lymphatics and the collateral veins were ligated, but edema did not develop. From 50 to 70 per cent alcohol injected peripherally into the femoral vein caused extensive venous thrombosis extending into the tributaries and a marked edema lasting from two and a half to three and a half weeks. An emulsion of barium sulphate in gelatin also produced marked edema. Tissue extracts from muscles of the hearts of dogs, the dogs' own serums and finally a concentrated tissue extract, fibrogen, when injected into the femoral vein, caused an extensive venous thrombosis with marked edema. The edema fluid was hemorrhagic and contained comparatively high percentages of protein, indicating injury to the capillary endothelium. If the fibrogen was prevented from forming a clot by the simultaneous injection of heparin, there was no edema. In spite of marked edema, particles of india ink injected into the foot reached the iliac lymph nodes, although delayed by the pressure of the fluid and by the limitation of muscular activity. An obstruction of the peripheral veins over a sufficiently extensive area with a bland, noninflammatory clot produced marked edema, with but little and only secondary involvement of the lymphatics. These results do not confirm the results of recent workers, who emphasize lymphatic obstruction.

Contraction of Cutaneous Grafts.—Davis and Kitlowski state that the only variable factor in cutaneous grafts is the amount of corium with its elastic tissue. In their experience the whole thickness including all the elastic tissue showed the largest amount of shrinkage, which was 43.6 per cent. The half thickness grafts consisting of only a portion of the corium with about half of its elastic tissue showed a shrinkage of 24.86 per cent. The thick Ollier-Thiersch grafts containing only the finest network of elastic tissue of the papillary layer of the corium had a shrinkage of 11.81 per cent. The true Ollier-Thiersch grafts, which contained only the tips of papillae of the corium and no elastic tissue, had a shrinkage that ranged up to 2 per cent, which might well be considered an error of manipulation. If this percentage of error is subtracted from the other three results, the authors feel justified in saying that whole thickness grafts have a shrinkage of 41 per cent, half thickness grafts, 22 per cent, and thick Ollier-Thiersch grafts, 9 per cent, while true Ollier-Thiersch grafts do not have any actual shrinkage.

Pericardial Adhesions.—According to Trout, adherent pericarditis is found in about 4 per cent of routine necropsies. "Acute rheumatic fever" of childhood is the chief etiologic factor, though tubercle bacilli and other organisms are frequently found to be the cause. The condition is far more frequent than it is usually thought to be. Diagnosis is extremely difficult; careful history, physical examination, roentgenograms and electrocardiograms are of great aid. Results of operations justify the plea for more frequent resort to surgical measures in spite of the difficulty of diagnosis. Avulsion of the left phrenic nerve is advocated by the author to supplement the Brauer operation when the trouble is shown to be due to adhesions between the pericardium and the diaphragm. A description of both the Delorme and the Brauer operation is given. A case is reported in which the Delorme operation was done.

Bile Flow into Duodenum.—Puestow describes experiments in which he noted that in the fasting animal with an intact normal gallbladder the orifice of the choledochus was usually closed, the exposed duodenal segment was relatively inactive, and there was almost never flow of bile. The intraductal pressure in the choledochus was found to be from 140 to 170 mm. of bile. The absence of flow of bile was evidently due to a sphincter mechanism at the duodenal end of the choledochus. The tonus of the duodenal musculature apparently was not the sole cause of the sphincter action, and a special sphincter mechanism was suggested. Food stimulated the flow of brown viscid bile. There was usually an initial ooze beginning with the ingestion of food and lasting for from one to three minutes. This was apparently due to psychic or reflex stimulation. A secondary flow began from ten to thirty minutes later and lasted several hours. The bile flowed in brief oozes and spurts, which were frequently related to activity of the exposed duodenum but often occurred independently. Respiration was not a significant factor in the discharge of bile. The exposed segment of bowel became more active and more hyperemic after feeding and reached a maximal degree of peristalsis about half an hour after the ingestion of food. After cholecystectomy, bile continued to flow in the fasting as well as in the nonfasting state. It was lighter in color and less viscid than the bile that flowed after an aminal with an intact normal gallbladder had been fed. Feeding had little effect on the discharge of bile other than to increase the quantity slightly. The orifice of the choledochus was constantly patent. Duodenal activity and its response to feeding were not influenced by cholecystectomy. After removal of the gallbladder, the intraductal pressure in the choledochus of the fasting animal was reduced to from 10 to 20 mm. of bile. Bile salts administered intravenously produced a profuse flow of thin yellow bile. Solutions applied locally to the exposed segment of duodenum occasionally stimulated a slight degree of duodenal activity and rarely were followed by the expulsion of a drop of bile, but generally they did not produce a definite response.

Peptic Ulcers of Duodenum.—Elman and Hartmann observed spontaneous peptic ulcers in six dogs that lost the total pancreatic juice for thirteen or more days and were kept alive and in good condition by careful feeding and the daily intraperitoneal administration of 500 cc. of Ringer's solution. These observations together with those of others point to the importance of the pancreatic juice in protecting the duodenal mucosa, most likely through its control of gastric acidity, by reflux into the stomach. The development of a high gastric acidity in clinical instances of duodenal ulcerations is explained by the diminished reflux of pancreatic juice due to increased pyloric tone. A number of proved cases of duodenal ulcerations were studied, and marked diminution of acid neutralization in the stomach was noted in all. Pylorospasm from whatever cause by diminishing duodenal reflux promotes a high gastric acidity which may be the only factor needed to prevent traumatic, mechanical or other erosions from healing and, indeed, from developing into a peptic ulcer. On the other hand, a pyloric ulcer causes spasm, which in turn promotes hyperacidity leading to a vicious circle and progression of the lesion. Pylorospasm itself is known to develop reflexly from other lesions in the abdomen, thus explaining the not infrequent association of duodenal ulcerations, appendicitis and cholecystitis. Much clinical study has shown that symptoms of pylorospasm and duodenal ulcerations may develop from or be aggravated by psychic factors presumably mediated through the vagus nerve. The importance of the pylorus in the treatment for duodenal ulcerations thus lies, in part at least, in its effect on the control of gastric acidity. Various operations have been designed, in fact, aiming, by removal of part of the muscle, to prevent pylorospasm. Recently, Morton and Archer called attention to cases of hypertrophy of the pylorus in adults on whom the Rammstedt operation was done with complete cure. Further study may show that this simple procedure may be all that is necessary for the relief of early pylorospasm with or without ulcer.

California and Western Medicine, San Francisco

35: 409-480 (Dec.) 1931

Observations on Bacillus Typhosus in Its Filtrable State. A. I. Kendall, Chicago, and R. R. Rife, San Diego.—p. 409.
Testicular Substance Implantation: Comments on Some 6,000 Implantations. L. L. Stanley, San Quentin.—p. 411.
Fibroids and Ovarian Cysts Complicating Pregnancy. F. W. Lynch, San Francisco.—p. 415.
Surgical Lesions of Bile Ducts and Gallbladder: Certain Principles in Their Treatment. W. Walters, Rochester, Minn.—p. 420.
Cardiospasm. J. H. Shephard, San Jose.—p. 422.
Chronic Empyema: Nontuberculous: Cases. C. D. Lockwood, Pasadena.—p. 424.
Typhoid-Paratyphoid Vaccine in Ocular Inflammations: Cases. H. F. Whalman, Los Angeles.—p. 428.
Medical Military Preparedness. T. W. Bath, Reno, Nev.—p. 431.
Arteriosclerotic Heart Disease: Cases. L. E. Viko, Salt Lake City.—p. 433.
Amebiasis: Comments on Various Amebacides: Case. H. H. Anderson and A. C. Reed, San Francisco.—p. 439.
Chronic Thyroiditis. W. Crane, Oakland.—p 443.
Essays on the History of Embryology: Old Ideas Regarding Sex, Fertilization and Procreation. A. W. Meyer, San Francisco.—p. 447.

Colorado Medicine, Denver

28: 531-606 (Dec.) 1931

Problems in Medical Economics. B. B. Blotz, Rocky Ford.—p. 536.
Medicosocial Aspect of Medical Care for Children. A. H. Washburn, Denver.—p. 540.
Prenatal and Maternal Care. C. B. Ingraham, Denver.—p. 542.

Endocrinology, Los Angeles

15: 473-571 (Nov.-Dec.) 1931

Recent Studies on Chemical Mediations of Nerve Impulses. W. B. Cannon, Boston.—p. 473.
*Endocrine Studies: XXXVI. Level of Ovarian Function During Pregnancy. A. W. Rowe, Boston.—p. 481.
*Some Clinical Results from Use of Adrenocortical Extract as Prepared by Method of Swingle and Pfiffner. J. T. Thompson and R. W. Whitehead, Denver.—p. 495.
*Pancreatitis and Diabetes Mellitus. J. Shirley Sweeney, Dallas, Texas.—p. 508.
Hypophysis, Carbohydrate Metabolism and Diabetes. B. A. Houssay and A. Biasotti, Buenos Aires, Brazil.—p. 511.
Compensatory Hypertrophy of Suprarenal Glands in Rat. H. E. Carlson, Minneapolis.—p. 524.
*Postural Hypotension Occurring in Negro with Addison's Disease. L. B. Duggan and D. P. Barr, St. Louis.—p. 531.
Differentiation of Thyrotoxicosis and Menopausal Disturbances. E. L. Sevringhaus, Madison, Wis.—p. 536.
Syndrome Resembling Familial Periodic Paralysis Occurring in Course of Exophthalmic Goiter. H. F. Dunlap and E. J. Kepler, Rochester, Minn.—p. 541.
Destruction of Depressor Action of Adrenalin by Ultraviolet Radiation. L. Kneer, O. S. Orth, D. J. Verda and W. E. Burge, Urbana, Ill.—p. 547.

Ovarian Function and Pregnancy.—Rowe makes a comparison between a group of cases of ovarian failure, of which 300 were functional and 30 surgical in origin, and a similar group in normal pregnant women, 77 of whom were studied at intervals of two weeks for approximately the last six lunar months of pregnancy. To these were added twenty-three controls. Biometric observations on the blood, urine, respiratory and carbohydrate metabolism are recorded and compared. In addition, a brief survey is made of the correlations of a long series of important clinical observations common to the two conditions. It is concluded that there is a certain amount of evidence which is consistent with, though it does not define, a lowered level of ovarian endocrine activity during gestation. The weight of the objective evidence completely negatives an ovarian overactivity—if, indeed, there is such a condition. The close parallelism in the pictures produced alike by functional ovarian failure with amenorrhea and early pregnancy is striking and urges caution in the establishment of a diagnosis until sufficient time has elapsed to resolve the major question.

Clinical Use of Suprarenocortical Extract.—The suprarenocortical extract used by Thompson and Whitehead was made according to the directions of Swingle and Pfiffner and was tested clinically on seven patients. Three of these patients had Addison's disease; three had pulmonary tuberculosis with varying degrees of hypo-epinephrinemia, and one was suffering from arthritis deformans. Precautions were taken to rule out any possible psychic factor in the clinical observations. Favorable results were obtained with all three cases of Addison's disease. The improvement observed is thought to be the result of treatment. Instances of remission and spontaneous recovery in earlier cases are cited to show that the very nature of the disease is such as to make positive conclusions impossible at present. Experience with tuberculous patients shows that the use of this extract is beneficial in improving the general condition but is possibly hazardous from the standpoint of the infection itself. The greatest danger seems to lie in administering excessive dosage intravenously and in giving the extract to patients with active tuberculosis which may be aggravated thereby. One patient with arthritis did not experience any ill effects from small subcutaneous injections. Pain was relieved in the inflamed joints and mobility was reestablished in some of those that had been immovable. Small subcutaneous injections of the extract are advised at the beginning of treatment. Some patients appear to be intolerant to desiccated whole suprarenal given orally. Greater clinical benefit can at times be obtained by combining cortical administration with other glandular therapy for which the case may indicate a need.

Pancreatitis and Diabetes Mellitus.—Sweeney reports a case of a moderately severe diabetes which developed in an individual who had a strong diabetic background. The diabetes was undoubtedly precipitated by a subacute pancreatitis. Following surgical relief of the associated jaundice, the diabetes disappeared and the patient has what appears to be fairly normal sugar tolerance.

Postural Hypotension and Addison's Disease.—According to Duggan and Barr, extreme postural hypotension may occur in Addison's disease and may increase the asthenia and aggravate the gastric symptoms. Study of a case which they report indicates that changes in position are accompanied by a tachycardia, in which respect the condition seems to differ from that of idiopathic postural hypotension. In this case, also, there was no evidence of the anhidrosis which has distinguished cases of the idiopathic form.

Journal of Comparative Neurology, Philadelphia

53: 389-509 (Dec. 15) 1931

Distribution of Afferent Fibers via Sympathetic Trunks and Gray Communicating Rami to Brachial and Lumbosacral Plexuses. A. Kuntz and D. I. Farnsworth, St. Louis.—p. 389.
Observations on Reflex Activity and Tonicity in Acute Decapitate Preparations, With and Without Ephedrine. J. C. Hinsey, S. W. Ranson and F. R. Zeiss, Chicago.—p. 401.
*Mechanism of Vision: IV. Cerebral Areas Necessary for Pattern Vision in Rat. K. S. Lashley, Chicago.—p. 419.
Changes in Sectional Areas of Largest Fibers in Fifth Lumbar Spinal Nerve and Its Roots in Albino Rat. K. Ide, Philadelphia.—p. 479.
Structure of Cells in Tissues as Revealed by Microdissection: V. Physical Properties of Nerve Cells of Frog (Rana Pipiens). G. S. de Rényi, Philadelphia.—p. 497.

53: 511-570 (Dec. 15) 1931. Supplement

Efficacy of Rat's Motor Cortex in Delayed Alternation. R. B. Loucks, Minneapolis.—p. 511.

Mechanism of Vision.—Lashley destroyed portions of the cerebral cortex, as nearly as possible symmetrical on the two hemispheres, in a number of rats. In a few cases the visual nuclei of the thalamus or the superior colliculi were destroyed. When the animals had recovered from the operation, they were tested for capacity to distinguish the position, distance and pattern of visual objects, with the following results: 1. Interruption of the optic radiations at their point of emergence from the internal capsule abolishes all capacity to react to visual objects, although the ability to distinguish between light and darkness is retained. 2. Destruction of a small area in the lateral part of the area striata of the cortex abolishes the capacity to distinguish between visual patterns but leaves the capacity to distinguish the position and to some extent the distance of visual objects. Two objects differing in size may be distinguished. but only on the basis of their total luminosity. 3. Partial destruction of the optic radiations or partial destruction of the lateral portions of the striate area leads to some inaccuracy of vision. On the average, acuity is somewhat decreased and the formation of habits based on discrimination of patterns is slowed. There is little indication of a differential fragility of different phases of pattern vision. 4. Lesions in the mesial portions of the striate area, in the supposed visual association area, or in the motor and somesthetic areas do not have any effect on the capacity to distinguish visual patterns or on the rate of formation of the visuomotor habits studied. The formation of visuomotor habits based on the discrimination of rather complex visual patterns probably does not require the establishment of integrations between the striate area and any other specific part of the cerebral cortex.

Journal of Comparative Psychology, Baltimore

12: 357-439 (Dec.) 1931

Effect of Emotional Stimuli on Activity Level of White Rat. J. R. Patrick, Columbus, Ohio.—p. 357.
Relative Potency of Facial Expression and Verbal Description of Stimulus in Judgment of Emotion. Florence L. Goodenough and M. A. Tinker, Minneapolis.—p. 365.
Behavior of White Rats Under Food and Electric Shock Stimulation. K. Dunlap, Evelyn Gentry and T. W. Zeigler, Baltimore.—p. 371.
Proprioceptive Ability of White Rat. W. Dennis, Richmond, Va.—p. 379.
Culdesac Phenomenon. Loh Seng Tsai, Peiping, China.—p. 393.
Studies in Individual Differences in Maze Ability: V. Luminosity and Visual Acuity as Systematic Causes of Individual Differences, and an Hypothesis of Maze Ability. R. C. Tryon, San Francisco.—p. 401.
Relation to Hunger and Activity Drives of Factor of Habituation to Maze. Margaret F. Washburn, E. L. Collens and E. Upjohn.—p. 421.
Block Elevated Maze for Rats. W. Dennis, Richmond, Va.—p. 429.

Journal of Infectious Diseases, Chicago

49: 455-540 (Dec.) 1931

*Variation of a Bacillus Coli-Like Organism. W. J. Nungester and S. A. Anderson, Chicago.—p. 455.
Metabolism of Protozoa: II. New Solid and New Liquid Medium for Cultivation of Leishmania Donovani. A. J. Salle, Berkeley, Calif. —p. 473.
Id.: III. Metabolism of Leishmania Donovani. A. J. Salle, Berkeley, Calif.—p. 481.
*Lethal Temperatures for Porcine Strains of Brucella Abortus: Especial Reference to Pasteurization. Ruth A. Boak and C. M. Carpenter, Rochester, N. Y.—p. 485.
*Bacteriology of Blood in Chronic Infectious Arthritis. H. Bernhardt and P. S. Hench, Rochester, Minn.—p. 489.
Distribution of Acid-Fast Bacteria in Soils. C. A. Frey and W. A. Hagan, Ithaca, N. Y.—p. 497.
Herpetic Virus in Mice: Pathogenicity, Immunity and Susceptibility of Host. H. B. Andervont, Boston.—p. 507.
*Interstitial Peripheral Neuritis in Experimental Poliomyelitis: Notes on Nature of First Pathologic Changes in Spinal Cord. A. Jordi, San Francisco.—p. 530.

Bacillus Coli-Like Organism.—Nungester and Anderson describe a series of variants which were produced from a Bacillus coli-like organism isolated from a case of empyema of the gallbladder. These variants differed in form of colony, with colonial structures of the R, S and intermediate types. A mucoid form of colony is also described. Marked difference in the ability of the variants to ferment lactose is noted when such studies are carried out on solid mediums containing lactose and an indicator. This difference is not noted when the tests are carried out in liquid mediums, because the conditions of liquid mediums favor reversion to the lactose-fermenting type. There is no absolute correlation between the form of the colony and the ability to ferment lactose. All variants, except the mucoid, are agglutinated in a high dilution of the agglutinating serum prepared against the parent form. The failure of the mucoid variant to be agglutinated may be attributed to the physical condition of the bacterial suspension. "Reverted" forms of the mucoid variant were agglutinated in a high dilution of the immune serum prepared against the parent form. Change from the lactose-fermenting to the non-lactose-fermenting forms is effected with difficulty. The reverse change is readily brought about. The influence of various conditions of growth on the latter change, such as a solid medium, the hydrogen ion concentration of the medium, the presence of lactose, dextrose or plain broth and irradiation of the organisms, is reported.

Porcine Strains of Brucella Abortus.—Boak and Carpenter report experiments that they performed to determine whether the temperature-time factor more or less universally used for the pasteurization of milk is satisfactory for destroying the most pathogenic strains of Brucella abortus. On the basis of their observations they conclude that the present requirements for the pasteurization of milk (heating at from 142 to 145 F. for from twenty to thirty minutes) are adequate for destroying the most virulent strains of Brucella abortus.

Blood in Infectious Arthritis.—Bernhardt and Hench made eighty blood cultures from twenty patients with chronic infectious arthritis. Although three different methods of cultivation were used (one of them being that published by Cecil, Nicholls and Stainsby) streptococci were not found in any culture. The authors do not consider the results in their series or in the cases covered by their survey as conclusive arguments for or against the theory that the type of chronic arthritis studied is infectious in origin. Although they are inclined to accept the theory that infection is of significance, it is apparent that, with present cultural methods, it is extremely difficult to isolate organisms from the blood of patients suffering from the condition studied, with any uniformity or with any great frequency.

Interstitial Peripheral Neuritis in Experimental Poliomyelitis.—Jordi states that the peripheral nerves in seventeen of twenty monkeys that were infected experimentally by intracerebral and intranasal methods showed a definite interstitial inflammation. The perivascular infiltrations, mostly by round cells, were generally small and inconspicuous and were not numerous. Infiltrations were found as early as twelve hours after the onset of the paralysis. However, in the three animals the nerves of which were free from infiltrations and in a few animals in which not all the extremities were affected, paralysis had existed for less than six days. Infiltrations were present in the nerves of extremities that were not paralyzed. The sciatic nerves of one normal monkey, which were partly cut twelve and four days, respectively, before the animal was killed, showed secondary degeneration but no signs of interstitial inflammation, thus proving that the interstitial neuritis in experimental poliomyelitis is caused by the specific virus. In early stages of poliomyelitis, necrosis of the ganglion cells, both in the spinal cord and in the intervertebral ganglion cells, and not the interstitial inflammation, is the first manifestation of the virus.

Journal of Nervous and Mental Disease, New York

75: 1-112 (Jan.) 1932

Report of Case of Patient Who Considers Himself an Hermaphrodite. I. L. Polozker, Detroit.—p. 1.
Acid-Base Equilibrium of Blood in Psychotic Patients: Especial Reference to Affective Psychoses. K. E. Appel, C. B. Farr and P. J. Hodes, Philadelphia.—p. 22.
Simple Time Key for Chronaxia. J. van de Erve and J. M. van de Erve, Charleston, S. C.—p. 34.
Meaning of the Dream. L. S. London, New York.—p. 40.

Journal of Pharmacology & Exper. Therap., Baltimore

43: 607-721 (Dec.) 1931

Magnesium Absorption in Dogs and Its Effect on Metabolism of Calcium. H. G. Barbour and J. E. Winter, Louisville, Ky.—p. 607.
*Some Factors Influencing Stability of Fluidextract of Ergot. M. I. Smith and E. F. Stohlman, Washington, D. C.—p. 621.
*"Avertin" Anesthesia in Experimental Nephritis. J. R. Veal, J. R. Phillips and C. Brooks, New Orleans.—p. 637.
*Importance of a Standard of Reference in Toxicity Determinations of Mercurochrome. J. H. Burn and G. D. Greville, London, England. —p. 645.
Responses of Excised Batrachian Alimentary Canal to Autonomic Drugs: I. Xenopus Laevis (South African Clawed Toad)—Pilocarpine, Physostigmine, Adrenalin. D. Epstein, Cape Town, South Africa.—p. 653.
Bulbocapnine Catalepsy and Grasp Reflex. C. P. Richter and A. S. Paterson, Baltimore.—p. 677.
Comparison of Rat and Mouse Units in Assay of Female Sex Hormone. T. J. Becker, C. H. Mellish, F. E. D'Amour and R. G. Gustavson, Denver.—p. 693.
Tolerance of Toad Toward Strophanthin. D. Epstein, Cape Town, South Africa.—p. 697.

Stability of Fluidextract of Ergot.—Smith and Stohlman present the results of a study of some of the factors influencing the stability of the fluidextract of ergot. They noted that storage at elevated temperatures was a potent factor in bringing about deterioration of the physiologically active alkaloids of ergot. Conversely, storage at icebox temperature seems to insure stability for at least eight months. Incubation at 50 C. for fifteen days causes pronounced deterioration of the fluidextract of ergot. The addition of oxidizing substances under these conditions markedly accelerates, while reducing substances considerably retard the rate of deterioration of the physiologically active alkaloids. The authors' observations indicate that decreasing the p_H of the fluidextract of ergot by varying it within the limits of from 5.2 to 2.2 does not favor its stability. Parallel assays by the colorimetric and Broom and Clark methods applied to a series of fluidextracts of ergot subjected to a wide range of deterioration gave no results indicating a degree of discrepancy greater than that which could be accounted for by the combined probable errors of the two methods.

"Avertin" Anesthesia in Experimental Nephritis.—From their observations on normal and nephritic rabbits, Veal and his associates conclude that "avertin" is contraindicated as a general anesthetic in cases of renal disease. Only in those cases in which the kidney function has been found to be normal should it be used as a general anesthetic. The danger of using "avertin" in cases presenting renal damage lies in the fact that the fatal dose closely approaches the anesthetic dose in such cases, leaving no adequate margin of safety between surgical anesthesia and death.

Toxicity Determinations of Mercurochrome-220 Soluble.—Burn and Greville report that the determination of the toxicity of a sample of mercurochrome-220 soluble by intravenous injection into mice and calculation of the average lethal dose gave a different result in one laboratory from that in another, although the details of technic were the same. Examination of four samples in each of two laboratories showed that there was a constant difference between the results obtained. The average lethal dose in one laboratory was regularly from 1.60 to 1.69 times greater than that in the other. This is a large difference to occur between two laboratories in a simple toxicity determination. It follows that the figure for the toxicity of a particular sample of mercurochrome-220 soluble holds good only for the conditions in which the figure is determined, and that in order to obtain figures that are generally applicable, the toxicity of an unknown sample must be stated in terms of some sample arbitrarily selected as a standard of reference.

Journal of Preventive Medicine, Chicago

5: 413-494 (Nov.) 1931

*Persistence of Yellow Fever Immunity. W. A. Sawyer, New York.—p. 413.

*Production of Artificial Immunity in Albino Rat to Metazoan Parasite. H. M. Miller, Jr., St. Louis.—p. 429.

Immunity of Albino Rat to Superinfestation with Cysticercus Fasciolaris. H. M. Miller, Jr., St. Louis.—p. 453.

Milk-Borne Epidemic of Typhoid Fever in Salisbury, Maryland. S. H. Hurdle, Salisbury, Md.—p. 465.

*Poliomyelitis in Adults: Sixty Cases. Margaret A. Limper, Huldah E. Thelander and E. B. Shaw, San Francisco.—p. 475.

Persistence of Yellow Fever Immunity.—Sixty serums from persons who had had a disease diagnosed as yellow fever from thirty to seventy years previously were tested by Sawyer for their power to protect monkeys against yellow fever virus; forty-five proved to have this protective power. Five of six serums from persons who had had yellow fever seventy-five years before the specimens were obtained protected monkeys, as did also one specimen taken seventy-eight years after the attack. The immunity from yellow fever ordinarily lasts for life and can be demonstrated by protection tests with the patient's serum, using rhesus monkeys or white mice. The persistence of immunity acquired through an attack of yellow fever is not dependent on any subsequent exposure to the bites of infected mosquitoes. There is evidence suggesting that the concentration of antibodies in the serum may in some cases gradually diminish until the antibodies are no longer demonstrable by protection tests with ordinary amounts of the serum; but it does not follow that in such cases the person becomes again infectible.

Artificial Immunity in Albino Rat.—Miller produced artificially an active acquired immunity to a metazoan parasite, Cysticercus fasciolaris, in the albino rat by periodic injections of fresh or powdered worm material. This is the first report of artificial immunity to a cestode parasite and is one of the few instances of artificially produced immunity to a metazoan parasite. In all but a few exceptional cases the cysts developed normally in the control animals and were completely or almost completely inhibited from growing in the immunized animals. Fresh or powdered worm material, usually injected intraperitoneally, was equally effective in producing immunity. The animal used in these experiments, the rat, is a natural host for the parasite.

Poliomyelitis in Adults.—Limper and her associates report that of 268 poliomyelitis cases in San Francisco in the 1930 epidemic 72 (26.8 per cent) were in persons over 16 years of age. A study was made of the case histories of 60 of these adults. Of the 60, only one was over 40 years old and 34 were between 16 and 25 years of age; 33 were males and 27 females. In course, sequelae and mortality rate (27 per cent) the disease was more severe in these adults than in the children affected in the same epidemic. The deaths among adults accounted for 70 per cent of the total epidemic mortality. Serum therapy seemed far less encouraging in the adults than in children, perhaps because of the later diagnosis in the adult cases.

Journal of Thoracic Surgery, St. Louis

1: 113-224 (Dec.) 1931

*Stab Wound of Heart: Electrocardiographic Studies of Two Cases. D. C. Elkin and H. S. Phillips, Atlanta, Ga.—p. 113.

Pneumocardiac Tamponade: Study of Effects of Atmospheric Pressure, Negative Pressure and Positive Pressure on Heart. C. S. Beck and Leabelle Isaac, Cleveland.—p. 124.

Decompression of Heart: Case. W. A. Hudson, Detroit.—p. 149.

Bronchiectasis. H. Ballon, J. J. Singer and E. A. Graham, St. Louis.—p. 154.

Bronchial Stenosis. L. Eloesser, San Francisco.—p. 194.

Stab Wound of Heart.—Elkin and Phillips report two cases of successful suture of stab wound of the heart. In one patient the wound was in the right ventricle with severance of the descending branch of the left coronary artery. In the other the wound was in the left ventricle and the coronary artery was uninjured. The electrocardiographic observations in both cases were similar to those seen in clinical occlusion of the coronary arteries. In the patient with ligation of the coronary artery, electrocardiographic changes did not appear until thirty-six hours after injury, a fact of clinical importance in differentiating between coronary occlusion and abdominal disease.

Kansas Medical Society Journal, Topeka

32: 399-432 (Dec.) 1931

Tribromethyl Alcohol ("Avertin") as Rectal Anesthetic. L. W. Angle, Kansas City.—p. 399.

Present Status of Urinary Antiseptics. A. D. Gray, Topeka.—p. 402.

Epidemic Cerebrospinal Meningitis. L. W. Shannon, Hiawatha.—p. 405.

Tularemia (Deer Fly Fever; Rabbit Fever). W. A. Hayward, Coffeyville.—p. 407.

Ocular Causes of Headaches. E. J. Mullen, Kansas City.—p. 411.

Laryngoscope, St. Louis

41: 797-860 (Dec.) 1931

Mastoiditis Complicated by Unusual Neurologic Manifestations: Case for Diagnosis. J. M. Polisar, Brooklyn.—p. 797.

*Residual Hearing After Radical Mastoidectomy. J. J. Pressman, Los Angeles.—p. 808.

Bilateral Labyrinthine Hemorrhage in Case of Aplastic Anemia. M. Rosenbluth, Bronx, N. Y.—p. 821.

Fatal Case of Pharyngeal Hemorrhage. A. Kaufman, Boston.—p. 826.

Diagnosis and Conservative Treatment of Sphenoid Suppuration. W. A. Wagner, New Orleans.—p. 829.

Acute Abscess in Body of Sphenoid, Ruptured into Pituitary Fossa: Necropsy Report. A. L. Grant, Jr., Auburn, Maine.—p. 842.

An Unusual Form of Acute Frontal Sinusitis. I. R. Smith, Toronto.—p. 845.

Bronchoscopic and Esophagoscopic Diathermy Electrodes. M. C. Myerson, New York.—p. 849.

*Relations of Dental Infections to Maxillary Sinus Disease. V. R. Alfaro, Washington, D. C.—p. 850.

An Aural Protector Against Noise and Water. A. C. Jacobson, Brooklyn.—p. 857

Residual Hearing.—Pressman states that, theoretically, the radical mastoid operation should not be detrimental to hearing. In 372 cases of radical mastoidectomy gathered from the literature, 35 per cent of the patients presented improved hearing, 45 per cent further loss of hearing, and 17 per cent no change. Several cases from the literature are described in which radical mastoidectomy resulted in an improvement of hearing amounting to at least 45 sensation units. Four cases are presented, each with bilateral otitis media and of similar duration on the two sides. One ear in each case was treated conservatively and the other by radical mastoidectomy. The poorer hearing ear was selected for operation. The end-result so far as hearing was concerned revealed that in three cases there was no great difference in hearing between one ear and the other. The fourth case, four months convalescent, presented a greater loss in the ear on which operation had been performed, but this relationship existed prior to operation, and no further loss in hearing followed the radical mastoidectomy. Four additional cases are presented, and the hearing level is compared before and after operation. Two of these four cases presented additional loss of hearing after operation, one shows definite improvement, and in the fourth there is no considerable change in either direction. Two similar groups, each of twelve consecutive cases of chronic suppurative otitis media, are compared so far as hearing is concerned. One group had been treated conservatively and the other by radical mastoidectomy. The nonoperative group presented slightly better hearing, but it is pointed out that patients selected for radical mastoidectomy usually suffer a greater hearing loss prior to treatment than those who are treated conservatively. The difference in hearing level is, at any rate, very slight.

Relations of Dental Infections to Maxillary Sinus Disease.—Alfaro believes that many infections of the maxillary sinus are due to frank or to hidden dental disease or to unavoidable dental trauma. A careful transillumination of all the teeth should be a routine procedure with every rhinologist, supplemented by a dental examination in suspicious cases. A careful examination by the dentist should be advised in all cases of maxillary sinusitis that do not respond to treatment in a reasonable length of time. The radical surgical treatment of chronic antrodental pathologic changes should be performed by the dental surgeon and the rhinologist together. A close cooperation at all times with the dental surgeon will decidedly reduce the percentage of failures.

New Jersey Medical Society Journal, Orange

28: 795-898 (Nov.) 1931

*Surgical Aspects of Biliary Tract Disease. J. B. Deaver, Philadelphia.—p. 795.

Value of Duodenal Tube Drainage of Biliary System in Treatment of Various Diseases and Disorders of Liver. B. B. V. Lyon, Philadelphia.—p. 799.

*New Method of Outlining the Heart, Its Chambers and Great Vessels. C. M. Fish, Atlantic City.—p. 817.

Uterine Hemorrhages Radiologically Considered. W. G. Herrman, Asbury Park.—p. 819.

Cardiac Failure of Congestive Type. C. E. Teeter, Newark.—p. 823.

Radiographic Diagnosis of Gallbladder Pathology. L. J. Gelber, Newark.—p. 829.

Myocardosis; the Failing Heart of Middle Life: Further Observations. A. E. Parsonnet, Newark, and A. S. Hyman, New York.—p. 831.

Fusospirochetal Disease of Lung. F. J. Altschul, Long Branch; C. A. Pons and W. G. Herrman, Asbury Park.—p. 834.

Clinical Evaluation of Concentrate of Vitamins A and D. J. H. Marcus, Atlantic City.—p. 850.

Looking at Facts in High Cost of Medical Care. E. Reissman, Newark.—p. 854.

Surgical Aspects of Biliary Tract Disease.—Deaver states that, among the serious possibilities of gallbladder disease, cholangeitis assumes importance because of its tenacious chronicity, a tenacity which is explained by the fact that the lesion of cholangeitis resides deep in the wall of the bile ducts. The symptoms of cholangeitis are those of infection plus certain features related to hepatic function. The mild case presents fever, malaise, anorexia, jaundice at times, and usually an appreciable enlargement of the liver—the same train of symptoms, in fact, as is seen in catarrhal jaundice, stone in the common duct, and hepatitis, so that differentiation is not always possible. Indications for operation depend on the surgeon's experience in estimating the patient's condition, and the degree of disability suffered by the patient. Some mild cases of cholangeitis may subside spontaneously. A similar acute judgment is required in the more severe cases which are characterized by septic temperature, deep jaundice, profuse sweats, anorexia, nausea, vomiting and marked enlargement of the liver. In these, the margin of safe surgery is easily overstepped. The physician acts best who seeks a surgical opinion early in the early case. The infection being interstitial, cure can be obtained only by continuous, prolonged drainage, such as can be obtained only by means of a T-tube in the common duct. The logic of the treatment is the same as that which applies to localized infection elsewhere in the body by the relief of tension and drainage, but with this difference, that such localized infections are usually acute conditions, whereas most of the lesions of the biliary tract are a chronic, low-grade and well established infection which has led to more or less functional derangement. Simple drainage of the gallbladder will not suffice for a cure in these cases. The gallbladder must be removed because the potential power for future trouble lies in the infection retained within its walls. So, removal of the gallbladder and T-tube drainage of the common duct will be required, according to presenting conditions. This applies likewise to involvement of the common duct and to pancreatitis. The author rarely used biliary drainage by cholecystogastrostomy or cholecystoduodenostomy, not only because he considered external drainage more effective but also because the stoma of either type of anastomosis does not remain patent for any length of time if the common duct is not permanently obstructed. Furthermore, the presence of the anastomotic opening may actually favor an ascending infection for the stomach or duodenum into the gallbladder and the upper biliary tract.

New Method of Outlining the Heart, Its Chambers and Great Vessels.—In outlining the borders of the heart, cardiac chambers and great vessels, Fish uses the Ford stethoscope and has found that more accurate results are obtained in outlining the more superficial structures by substituting a piece of rubber tubing for the bell of the stethoscope. The bell of the stethoscope is first placed just below the tip of the xiphoid process and to the right of the midline (point 1). Then, beginning on the lower thoracic wall and percussing from the sides toward the sternum, using a gentle percussion stroke, one hears a definite increase in volume of sound when the percussing finger reaches a point that corresponds to the surface markings of the inferior vena cava. The course of this vessel can be followed to a point beneath the right border of the sternum at the level of the third interspace, at which point the vena cava enters the right auricle. Then, substituting a piece of one-fourth inch rubber tubing for the bell of the stethoscope, and placing the tubing at point 2 (the right border of the sternum at the level of the third interspace), and using a very gentle percussion stroke, one can percuss out two areas that correspond to the right auricle and right ventricle. Owing to greater depth of the ventricle, it is necessary to use a somewhat heavier stroke when one percusses its borders. When the percussion stroke is properly gaged, a very definite increase in the volume of sound is heard as the borders of the cardiac chambers are reached. The tubing of the stethoscope is again substituted for the bell and moved to point 3 (the third interspace just to the left of the sternum). From this point, by the same method used in outlining the borders of the right auricle and ventricle, one can outline the left auricle and ventricle, keeping in mind the fact that a heavier percussion stroke is necessary in outlining a deeper structure than a more superficial one. Without changing the point of contact for the stethoscope, but using the bell instead of the tubing, one may outline the ascending, transverse and descending rami of the arch of the aorta. If the stethoscope bell is then placed at point 4 (below the xiphoid process and just to the left of the midline), the descending aorta may be traced from below upward; and this is found to coincide accurately with the descending limb of the arch as determined from point 3. As that point overlies the interventricular septum, the outer borders of the heart can be outlined by the same technic. The cardiac chambers previously outlined are found to lie within these borders.

Philippine Islands M. Assn. Journal, Manila

11: 425-456 (Nov.) 1931

Prepsychotic Manifestations in Dementia Praecox (Schizophrenia). E Domingo.—p. 425.

Treatment with Malaria of General Paralysis of Insane. C. de Asis.—p. 429.

Manganese Chloride in Treatment of Functional Mental Diseases. J. A. Fernandez.—p. 432.

Rupture of Placenta: Case. S. Y. Orosa, S. Ochoa and J. Varela.—p. 436.

Pulmonary Suppuration and its Treatment. S. U. Estrada.—p. 438.

Public Health Reports, Washington, D. C.

46: 3023-3101 (Dec. 18) 1931

Scarlet-Fever Streptococcus Antitoxin in Treatment of Scarlet Fever. M. V. Veldee, F. E. Stevenson and A. G. Mitchell.—p. 3023.

Rhode Island Medical Journal, Providence

14: 187-200 (Dec.) 1931

Modern Aspects of Hypertension. C. B. Leech, Providence.—p. 187.

Case of Double Vagina, Uterus and Bladder. R. C. Bates, Providence.—p. 192.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Children's Diseases, London

28: 263-340 (Oct.-Dec.) 1931

Experimental Scarlet Fever by Means of Scarlatinal Hemolytic Streptococcus. T. Toyoda, Y. Futagi and M. Okamoto.—p. 263.
*Purpura as Complication of Scarlet Fever. F. G. Wood-Smith.—p. 273.
*Hair Eating and Pica in Children. Jean Smith.—p. 282.
Dwarfism with Stippled Epiphyses. W. G. Sears.—p. 290.
Helminths as Cause of Meningitis. L. J. M. Laurent.—p. 296.

Purpura as Complication of Scarlet Fever.—According to Wood-Smith, purpura is a rare complication of scarlet fever. In the cases to which he has been able to refer in the medical literature, the two sexes appear to be equally affected. Children are more commonly affected than adults. The purpura is most probably due to capillary damage caused by the toxin of the streptococcus responsible for scarlet fever. Purpura may occur during the course of any type of scarlet fever, whether mild or severe. The most common time for the purpura to make its appearance is during the third week of the infection. The platelet count, although often decreased, may be normal. All forms of purpura described are manifestations of the same condition in varying degrees of severity. The death rate is high, and in the fulminant type death may occur in forty-eight hours or sooner.

Hair Eating and Pica in Children.—Smith points out that heretofore the treatment of most cases of hair ball which have been diagnosed during life has been surgical. The ileocecal valve presents much greater difficulty to the passage of the foreign body than does the pylorus. In a case reported by the author, the pain and distention did not appear until the mass reached the ileocecal valve. Roentgen examination, in that by this means it may be possible to ascertain the density, size and number of hair balls present in the stomach, is of assistance both in the diagnosis of this condition and in directing treatment. If a foreign body fills the stomach, the only course is obviously to operate. If, however, several smaller balls are present, expectant treatment may be adopted provided surgical help is always available should acute obstruction supervene.

British Medical Journal, London

2: 1121-1164 (Dec. 19) 1931

Murpby, and Some Principles of Urinary Surgery. A. H. Burgess.—p. 1121.
*Shock Following Blood Extravasation, with Especial Reference to Treatment of Accidental Hemorrhage. O. Browne.—p. 1124.
*Nasal Element in Spasmodic Asthma. J. Dundas-Grant.—p. 1127.
*Survey of Probable Prognostic Factors in Treatment of General Paralysis. W. A. Caldwell.—p. 1129.
*Treatment of True Rheumatoid Arthritis by Blood Transfusion and Insulin. W. S. C. Copeman.—p. 1130.
Rational Dosage of Diphtheria Antitoxin. E. Grundy.—p. 1132.

Shock Following Blood Extravasation.—Browne emphasizes the fact that shock can follow blood extravasation, but this is not inevitable. The first step in the production of shock is a fall in blood pressure, and accordingly as the blood pressure falls to lower levels pulse rate and urinary changes become evident. A persistently falling blood pressure, in spite of prophylactic treatment, is of serious import, and efforts should be made in the presence of such readings to localize and remove the blood effusion. Prophylactic treatment is of the utmost importance. By its use otherwise inoperable cases will be rendered safe for operation. In the event of labor not starting after puncture of the membranes, and so forth, plugging the vagina should be performed without delay, provided the blood pressure is approximately 80 mm. of mercury. Below this level, unless marked improvement in the patient is soon noted, classic cesarean section should be performed.

Nasal Element in Spasmodic Asthma.—According to Dundas-Grant, it is obvious that asthma depends on many disease conditions and is in a way rather a symptom than a disease in itself. This may not afford much immediate consolation to the sufferer but it indicates to the practitioner that it must be analyzed and attacked from various sides. If on one side there is failure, an attack may be hopefully made on another, if undue delay is avoided. On the strength of the results he has produced, he urges writers on asthma in textbooks of medicine to place among their foremost instructions that the nasal condition should be thoroughly investigated and judiciously dealt with.

Prognostic Factors in Dementia Paralytica.—Caldwell states that in dementia paralytica pregnancy doubles the chances of remission. Patients below the age of 40 years make the most economically satisfactory remission, although this should not prevent every patient whose physical state will stand it from receiving treatment quite irrespective of age. In England, expansive and manic patients with dementia paralytica give the best prognosis, while depressed and juvenile cases do not respond satisfactorily to treatment. The ability to remember the primary infection and its treatment is of prognostic value, although neither the length of time elapsing before the onset of neurosyphilis nor the pathologic observations are of any value in this respect. Treatment must be thorough and should be supported by a subsidiary course of an organic arsenic compound after the fever.

Rheumatoid Arthritis.—Copeman believes that the best method of dealing with a case of rheumatoid arthritis which fails to respond to ordinary measures is by a combination of blood transfusion and insulin. No harm will result, and in most cases considerable benefit may be expected. The complete procedure is as follows: 1. Search is made for a toxic focus; if one is found, appropriate treatment is given (the bowel should not be forgotten as a "focus"). 2. If this produces no improvement, one should estimate (*a*) the blood sedimentation rate, to see whether a hidden focus of infection is probable, and (*b*) the sugar tolerance curve, in view of future treatment with insulin. 3. The patient is placed in bed, and two blood transfusions of 500 cc. each are given at an interval of eight days, with intensive physical treatment after each. With nervous patients it is often best to refer to the procedure as a blood "injection," rather than as a "transfusion." 4. The patient should be made to get up on the ninth day. It is important to do this (if she is fit enough) before the psychologic effect of the procedure has worn off, particularly with a patient who is almost resigned to being bedridden, as is so often the case. The patient must be keen to help, and her cooperation and interest must be sought if the best results are to be obtained. 5. The patient is put on an insulin regimen and made to weigh herself every day and chart her weight as a curve to stimulate her interest in the method. Most patients will gain about 1 pound in the first week, and after that from 1 to 2 pounds a week in favorable cases. If the patient has been losing weight prior to the institution of this method, a "latent period" of from seven to ten days must be expected before any gain in weight is made. The patient must be cautioned against the expectation of any "miraculous" result but should be told to expect and report gradual improvement in her general and local condition and weight, the effect on the general health and mental outlook generally being the initial signs of permanent improvement.

Lancet, London

2: 1335-1390 (Dec. 19) 1931

*Gastrojejunocolic Fistula, with Megalocytic Anemia Simulating Sprue. N. H. Fairley and T. P. Kilner.—p. 1335.
*Protein in Asthma. T. Nelson and A. D. Porter.—p. 1342.
*Variations in Antigen Content of Serum in Disease. A. Q. Wells.—p. 1348.

Gastrojejunocolic Fistula.—Fairley and Kilner report three cases of gastrojejunocolic fistulas presenting a clinical picture simulating sprue. All presented an anemia of megalocytic type. Two were associated with high secretion of hydrochloric acid, and both responded temporarily to liver extract in adequate dosage. Analysis of the feces showed a high fecal fat with adequate splitting. Chemical examination of the blood revealed a lowered total calcium associated with a normal inorganic phosphorus and a low serum bilirubin content. The rôle of malabsorption in a short-circuited small intestine, and the absence of Castle's stimulating factor in the production of the anemia, are discussed.

Protein in Asthma.—According to Nelson and Porter, a small weekly hypodermic dose of simple animal protein in high dilution is an effective agent in preventing allergic spasm. It is difficult to prolong the action of the protein except in mild cases. The authors agree with van Leeuwen that, while skin tests often reveal the allergic condition, they are not of therapeutic value.

Variations in Antigen Content of Serum in Disease.—When Wells titrated the serums from various animals and from man against the appropriate antiserums, he noted that the antigen content of each species was constant. Antiserums against any one serum do not always contain the same antibody. The author suggests that two antihuman serums contained, in one case antialbumin bodies, and in the other antiglobulin bodies. The serum from some nephritic patients differed markedly from normal human serums in their antigen content. The antigen content and the total protein content in the serum of a horse after severe bleeding showed remarkable agreement.

2: 1391-1442 (Dec. 26) 1931

*Abdominal Discomfort. A. E. Russell.—p. 1391.
*Vitamin B in Anemia. S. Davidson.—p. 1395.
*Tonsillectomy, Schick Immunity, and Diphtheria Carriers. S. F. Dudley. —p. 1398.
*Diphtheria Immunity and Tonsillectomy. A. H. G. Burton and A. R. Balmain.—p. 1401.
Treatment of Vesical Papillomas. J. B. MacAlpine.—p. 1403.
Amebiasis in Temperate Zone: Seven Cases. I. MacDonald.—p. 1404.
Deep Broth Cultures of B C G. A. Saenz.—p. 1406.

Abdominal Discomfort.—Russell calls attention to the fact that painful as are many of the disturbances within the abdomen it is a matter for surprise how painless are many of the grossest of them. Ascites, for instance, may be and usually is painless, even in extreme degree, though it will give rise to discomfort often described as a sensation of tightness. In fact, its important symptoms are often situated in remoter regions—dyspnea and cardiac embarrassment, for instance, from pushing upward of the diaphragm. But the more rapid the development of fluid the more likely is pain to be present, and any exudation associated with acute peritoneal inflammation gives rise to severe pain. Tuberculous peritonitis in its acute forms or in the localized suppurative variety may be accompanied by severe pain but is sometimes so painless that its presence is ascertained only through the increasing size of the abdomen or during the routine examination of a patient complaining of general signs of ill health. The mere enlargement of an abdominal organ need not cause pain. An enlarged spleen is usually painless, and even an enormous enlargement may cause nothing more than discomfort or a sensation of weight. How little this discomfort may be is shown by the fact that it is very unusual for a patient suffering from myelemia to consult a physician for abdominal discomfort or pain until his spleen has attained a great size, and it is quite common in those cases in which the patient seeks advice for the general symptoms such as anemia or weakness for a great enlargement of the spleen to be discovered which has produced no symptoms whatever. It is quite a different matter, however, when a patch of local peritonitis develops on the surface of the spleen after an infarction, for instance. Similarly, great enlargement of the liver may cause nothing more than a sensation of weight, but one factor that certainly influences sensation is the rapidity with which the enlargement takes place. A liver that has enlarged rapidly from passive distention with blood in cardiac failure or with bile in obstruction of the biliary passages is much more tender than a liver that has enlarged slowly. Malignant growths may give rise to little pain, and cancer of the liver and even of the stomach may proceed to an almost painless end. No one would belittle the pain of cancer, above all of external parts, but internal growths are sometimes very benign as regards pain and produce little more than discomfort.

Vitamin B in Anemia.—Davidson treated a series of cases of primary and secondary anemia with large doses of vitamin B. The evidence produced was definitely against vitamin B being the antianemic factor contained in liver or liver extract. The author discusses the possible value of vitamin B during the remission stage.

Tonsillectomy, Schick Immunity, and Diphtheria Carriers.—Dudley reports that in a semi-isolated community the total carrier rate for diphtheria bacilli among boys who had been operated on for tonsils and adenoids was half that in a control group. There was, however, no significant difference in the carrier rate for toxigenic diphtheria bacilli; tonsillectomy had apparently only lowered the incidence of avirulent infections. The frequency of positive Schick reactions was twice as great in the control as in the tonsillectomized group. Boys in the Schick susceptible subgroup in which the tonsils had been removed were more easily immunized artificially than boys in other Schick susceptible groups. Evidence is brought forward in favor of the view that tonsillectomy does not, in itself, stimulate the production of diphtheria antitoxin but in some way accelerates latent immunization by the diphtheria bacilli of the environment.

Diphtheria Immunity and Tonsillectomy.—Burton and Balmain made an investigation of 682 children who had been Schick tested in relation to the effect of previous tonsillectomy on diphtheria immunity; 27.6 per cent (190 children) had had previous tonsillectomy. They review the relationship of the following factors to the Schick test and previous tonsillectomy: age, proportion of children Schick positive and Schick negative, artificial immunization and family grouping. The results of the inquiry justify the conclusion that previous tonsillectomy has no influence on the production of immunity to diphtheria in children living in a residential nonrural, noncongested area.

Medical Journal of Australia, Sydney

2: 703-734 (Dec. 5) 1931

Scarlatina. F. V. G. Scholes.—p. 703.
Insects in Their Relationship to Injury and Disease in Man in Australia. J. B. Cleland.—p. 711.
Study of Bacteriophage in Relation to Infantile Bacillary Dysentery. F. M. Burnet, Margot McKie and I. J. Wood.—p. 714.
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2: 735-766 (Dec. 12) 1931

Some Voyages Connected with Discovery of Australia: Their Medical History. E. S. Jackson.—p. 735.
Observations on the Certainly Lethal Dose of Venom of Common Brown Snake (Demansia Textilis) for Common Laboratory Animals. C. H. Kellaway.—p. 747.

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Tubercle, London

13: 97-144 (Dec.) 1931

Gelatinothorax in Treatment of Infective Conditions of Pleural Cavity. J. Crocket.—p. 97.
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Annales de Médecine, Paris

30: 297-400 (Nov.) 1931

*Thyroid and Sympathetic Nervous System in Exophthalmic Goiter. D. Daniélopolu.—p. 297.
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Chronic Rheumatism: Two Cases. G. Étienne, Drouet and Neiman.—p. 365.
Bronchoscopy in Diagnosis and Therapy in Bronchopulmonary Diseases. A. Soulas.—p. 372.

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Écho Médical du Nord, Lille

35: 613-624 (Dec. 26) 1931

*Routes of Approach to Anterior Mediastinum and Upper Thoracic Cavity. O. Lambret.—p. 613.

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Journal d'Urologie Médicale et Chirurgicale, Paris

32: 393-480 (Nov.) 1931

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Presse Médicale, Paris

39: 1605-1620 (Nov. 4) 1931

*Hepatic Elimination of Tetiothalein Sodium and Its Relation to Cholecystography. M. Chiray, J. Lesage and E. Taschner.—p. 1605.

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39: *1669-1684 (Nov. 14) 1931*

*"Effort" Thrombophlebitis. C. Lenormant and H. Mondor.—p. 1669.
Epidemic of Chickenpox with Herpes Zoster. P. J. Braslawsky.—p. 1671.

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Variations in Antigen Content of Serum in Disease.—When Wells titrated the serums from various animals and from man against the appropriate antiserums, he noted that the antigen content of each species was constant. Antiserums against any one serum do not always contain the same antibody. The author suggests that two antihuman serums contained, in one case antialbumin bodies, and in the other antiglobulin bodies. The serum from some nephritic patients differed markedly from normal human serums in their antigen content. The antigen content and the total protein content in the serum of a horse after severe bleeding showed remarkable agreement.

2: 1391-1442 (Dec. 26) 1931

*Abdominal Discomfort. A. E. Russell.—p. 1391.
*Vitamin B in Anemia. S. Davidson.—p. 1395.
*Tonsillectomy, Schick Immunity, and Diphtheria Carriers. S. F. Dudley.—p. 1398.
*Diphtheria Immunity and Tonsillectomy. A. H. G. Burton and A. R. Balmain.—p. 1401.
Treatment of Vesical Papillomas. J. B. MacAlpine.—p. 1403.
Amebiasis in Temperate Zone: Seven Cases. I. MacDonald.—p. 1404.
Deep Broth Cultures of B C G. A. Saenz.—p. 1406.

Abdominal Discomfort.—Russell calls attention to the fact that painful as are many of the disturbances within the abdomen it is a matter for surprise how painless are many of the grossest of them. Ascites, for instance, may be and usually is painless, even in extreme degree, though it will give rise to discomfort often described as a sensation of tightness. In fact, its important symptoms are often situated in remoter regions—dyspnea and cardiac embarrassment, for instance, from pushing upward of the diaphragm. But the more rapid the development of fluid the more likely is pain to be present, and any exudation associated with acute peritoneal inflammation gives rise to severe pain. Tuberculous peritonitis in its acute forms or in the localized suppurative variety may be accompanied by severe pain but is sometimes so painless that its presence is ascertained only through the increasing size of the abdomen or during the routine examination of a patient complaining of general signs of ill health. The mere enlargement of an abdominal organ need not cause pain. An enlarged spleen is usually painless, and even an enormous enlargement may cause nothing more than discomfort or a sensation of weight. How little this discomfort may be is shown by the fact that it is very unusual for a patient suffering from myelemia to consult a physician for abdominal discomfort or pain until his spleen has attained a great size, and it is quite common in those cases in which the patient seeks advice for the general symptoms such as anemia or weakness for a great enlargement of the spleen to be discovered which has produced no symptoms whatever. It is quite a different matter, however, when a patch of local peritonitis develops on the surface of the spleen after an infarction, for instance. Similarly, great enlargement of the liver may cause nothing more than a sensation of weight, but one factor that certainly influences sensation is the rapidity with which the enlargement takes place. A liver that has enlarged rapidly from passive distention with blood in cardiac failure or with bile in obstruction of the biliary passages is much more tender than a liver that has enlarged slowly. Malignant growths may give rise to little pain, and cancer of the liver and even of the stomach may proceed to an almost painless end. No one would belittle the pain of cancer, above all of external parts, but internal growths are sometimes very benign as regards pain and produce little more than discomfort.

Vitamin B in Anemia.—Davidson treated a series of cases of primary and secondary anemia with large doses of vitamin B. The evidence produced was definitely against vitamin B being the antianemic factor contained in liver or liver extract. The author discusses the possible value of vitamin B during the remission stage.

Tonsillectomy, Schick Immunity, and Diphtheria Carriers.—Dudley reports that in a semi-isolated community the total carrier rate for diphtheria bacilli among boys who had been operated on for tonsils and adenoids was half that in a control group. There was, however, no significant difference in the carrier rate for toxigenic diphtheria bacilli; tonsillectomy had apparently only lowered the incidence of avirulent infections. The frequency of positive Schick reactions was twice as great in the control as in the tonsillectomized group. Boys in the Schick susceptible subgroup in which the tonsils had been removed were more easily immunized artificially than boys in other Schick susceptible groups. Evidence is brought forward in favor of the view that tonsillectomy does not, in itself, stimulate the production of diphtheria antitoxin but in some way accelerates latent immunization by the diphtheria bacilli of the environment.

Diphtheria Immunity and Tonsillectomy.—Burton and Balmain made an investigation of 682 children who had been Schick tested in relation to the effect of previous tonsillectomy on diphtheria immunity; 27.6 per cent (190 children) had had previous tonsillectomy. They review the relationship of the following factors to the Schick test and previous tonsillectomy: age, proportion of children Schick positive and Schick negative, artificial immunization and family grouping. The results of the inquiry justify the conclusion that previous tonsillectomy has no influence on the production of immunity to diphtheria in children living in a residential nonrural, noncongested area.

Medical Journal of Australia, Sydney

2: 703-734 (Dec. 5) 1931

Scarlatina. F. V. G. Scholes.—p. 703.
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39: 1669-1684 (Nov. 14) 1931

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39: 1685-1708 (Nov. 18) 1931

*Asthma and Fever. F. Bezançon and A. Jacquelin.—p. 1685.
Ovarian Endocrinology. R. Courrier.—p. 1688.
Skin Manifestations in Venous Diseases: Edemas. G. Delater.—p. 1690.
Serum Sickness, Vaccinal Shock and Biotropism. P. Chantriot.—p. 1692.

Asthma and Fever.—Bezançon and Jacquelin found that febrile infections may sometimes cause the appearance or reappearance of asthmatic attacks with fever so high that the conditions are often mistaken for capillary bronchitis or bronchopneumonia. It is difficult to explain the mechanism in which an acute infection leads to sedation of more or less serious and prolonged asthma. Fever can both produce asthma and arrest it. This power is vested in general acute infections without distinct localization (influenza, a seasonal infection, septicemia, eruptive fever), sudden infections (tuberculosis), localized nonsuppurative infection (appendicitis), suppurative infections (tonsillar or peripharyngeal phlegmon, abscess of lymph node, lung abscess, suppurative osteomyelitis of tibia, furuncle, anthrax). The efficacy of the liver is completely independent of the cause that produces it. These febrile states are all accompanied by intense polymorphonucleosis. During the fever the authors recommend a very reduced dietary regimen, no chlorides, plenty of fluids, juices of fruits and vegetables, also rest in bed, and prescription of cholagogues and laxatives. The aim should be to counteract the intoxication during the fever and diminish the asthmatogenous autointoxication resulting from fatigue, dietary abuse, and hepatic deficiency. During asthmatic attacks the alkali reserve is increased and the p_H of the blood is decreased. Fever interrupts asthmatic attacks when it prevents the displacement of the acid-base balance toward the alkaline side. Asthma is characterized by an increase in mononuclear leukocytes and eosinophils and a decrease in polymorphonuclear leukocytes. Favorable medications should produce leukocytosis with polymorphonucleosis: injections of epinephrine, peptone, vaccines, phlyctenotherapy, and ultraviolet irradiation in strong doses. Induced hyperthermia works in the same manner as spontaneous hyperthermia. Pyretotherapy is especially indicated in asthma with subintrant crises as well as conditions of permanent dyspnea caused by asthma. The authors consider the use of massive doses of ultraviolet rays with induced temperature of from 38 to 38.5 C. for from twenty-four to forty-eight hours; subcutaneous injections of autovaccines, stock lysate vaccines and antichancroid vaccines with single doses not smaller than two billion organisms injected at intervals of two or three days as contraindicated. Intravenous injections of antichancroid vaccines are most easily regulated; however, a fixation abscess (from 1 to 2 cc. of oil of turpentine injected subcutaneously) although painful is also efficient. The recurrent asthmatic attacks after treatment are not so severe and are then more easily treated with epinephrine or ephedrine.

39: 1709-1724 (Nov. 21) 1931

Relation Between Maximum Respiratory Output and General State of Nutrition. J. L. Pech and E. Delcroix.—p. 1709.
*Action of Roentgen Irradiation of Suprarenal Region in Treatment of Diabetes Mellitus. L. Langeron, R. Desplats and J. Béra.—p. 1709.
Ether Narcosis by Rectum. E. Fermaud.—p. 1711.

Roentgen Irradiation of Suprarenal Region in Treatment of Diabetes.—Langeron and his co-workers do not believe that their researches during the last two years warrant definite conclusions; however, their impressions of the results obtained seem worthy of note. They describe the results obtained in eleven patients under observation and conclude that in diabetes of moderate intensity one can obtain through roentgen irradiation of the suprarenal region and without inconvenience interesting abatement in the glycosuria; in severe diabetes with acidosis, on the contrary, the results are negative and the method is distinctly contraindicated. The results obtained in the first series are sufficiently interesting to favor treatment. Only diabetes is considered in this report, arterial symptoms and trophic disturbances having been considered in other articles. The results in roentgen therapy are equivalent to those obtained after denervation of the suprarenals.

Archivio Italiano di Urologia, Bologna

7: 239-350 (Nov.) 1931

*So-Called Malignant Nephrosclerosis (Fahr). G. Patrassi.—p. 239.
Rare Tumors of Bladder. R. Rizzi.—p. 306.
Congenital Vesicorenal Backflow with Dilatation of Upper Urinary Passages. A. Paladini.—p. 337.
Small Catheter for Ureteral Examination in Presence of Obstruction in Meatus Urinarius and in Ureteral Canals. C. Chiaudano.—p. 344.

So-Called Malignant Nephrosclerosis (Fahr).—Patrassi discusses, on the basis of seven cases of renal sclerosis (in most of which death had resulted from renal insufficiency), the conception of malignant renal sclerosis in its morphologic and pathogenic characters. The fundamental change in the small arteries consisted of arteriosclerosis with hyaline degeneration of the walls. No true necrosis or fibrinoid degeneration of the arterial walls was encountered. Even in case of ischemic infarct of the kidney the necrosed arteries did not show a special affinity for fibrin (Weiggert method). With respect to intensity and course the lesions of the arterioles and of the glomeruli did not always run parallel. The latter, especially when subjected to excessive work (as in compensatory hypertrophy), may become primarily involved. Of great importance for the genesis of the tubular changes are the thickening and the hyalinization of the basal membrane of the tubules. These changes, from a pathogenic and functional point of view, are comparable to those of the basal membrane of glomerular loops.

Bollettino d. Istit. Sieroter. Milanese, Milan

10: 665-748 (Nov.) 1931

Action of Magnesium Chloride on Hemolytic Amboceptors. F. Buonomo La Rosa.—p. 665.
Pathogenic Action of Klossiella Muris on Kidney of Mouse and Transmission of Coccidium from Mouse to Guinea-Pig. Olga Cannarella.—p. 670.
Vitamin C Deficiency and Anaphylaxis. R. Severi.—p. 685.
*Experimental Researches to Identify Cancrigenic Agent of Coal Tar. L. Lazzarini.—p. 696.
The Henry Reaction in Clinical Diagnosis of Malaria. E. Bonalberti.—p. 711.
Enzymes and Immunity. M. Ghiron.—p. 720.
Physicochemical Study on Tuberculins. L. Villa.—p. 723.
Influence of Acidity of Serum in Zammit Lactoreaction and Useful Change in Technic. I. Pisu.—p. 734.

Research to Identify Cancrigenic Agent of Coal Tar.—Lazzarini searched in the white mouse for the cancrigenic substance of tar. The first research deals with the black granulations that are commonly observed in the internal organs of mice whose skin has been tarred. The microchemical researches produced uncertain results. The second research refers to phenols and to the pyridic bases extracted from the internal organs of the mouse by means of distillation in a jet of steam; the results furnish negative evidence for the action of these substances. The third research is made on pyrolic and indolic compounds; the author succeeded in demonstrating an oncogenic action of these substances in three ways: (1) finding of indole and pyrol in the internal organs of mice treated with tarring of the skin; (2) provoking cancer in mice treated with parenteral injections of indole and pyrol and not thoroughly tarred, and (3) ascertaining that in animals treated only with injections of indole and pyrol, changes similar to those that are to be observed in mice simply tarred appear in the internal organs. Having thus demonstrated the cancrigenic action of indole and pyrol, the author adds that, even if these substances possessed a cancrigenic action, it alone would not be sufficient to provoke a cutaneous cancer but would require other adjuvant forces, which are to be sought not only in other components of tar but also in special individual and ambient conditions. The author, in conclusion, formulates tar complex (C), plus organism complex (O), plus stimulus factor (S), as the probable pathogenesis of the cutaneous tar cancer, assigning to the first group (C) the compounds of the pyrolic and indolic group; to the second group (O) the defense reaction of the tissues and allergic defense, and to the third group (S) the inflammations.

Semana Médica, Buenos Aires

38: 1741-1808 (Dec. 10) 1931. Partial Index

Surgical Diathermy in Treatment of Cancer. J. M. Jorge.—p. 1741.
Vaginal Route in Surgery of Tumors of Internal Female Genital Organs. A. Chueco.—p. 1749.
Cortical Hepatitis Causing Hepatic Colic. R. Solé.—p. 1757.
*Mean Blood Pressure in Goiter. E. B. del Castillo and A. F. Nanclares.—p. 1766.
Circumscribed Forms of Tuberculosis of the Bones. M. J. Fitte.—p. 1773.
Semeiologic Interpretation of Teleroentgenograms of "Middle Arc." P. Cossio, R. Dassen, R. Lottero Lanari and I. Berconsky.—p. 1786.

Mean Blood Pressure in Goiter.—Castillo and Nanclares made oscillometric determinations of the mean blood pressure in twenty-eight persons with several forms of goiter, with and without hyperthyroidism. The first group (goiter patients with hyperthyroidism) included fourteen patients with toxic adenoma and seven patients with exophthalmic goiter. The second group (goiter patients without hyperthyroidism) included seven patients with nontoxic adenoma. The author concludes: The mean blood pressure is increased in 44 per cent of patients with toxic adenoma and is normal in 56 per cent. There is a relative increase of the mean blood pressure in patients with exophthalmic goiter. The mean blood pressure is normal in patients with nontoxic adenoma.

38: *1809-1892 (Dec. 17) 1931*

Treatment of Intestinal and Biliary Infections by Bacteriophage. H. J. d'Amato, R. Gorlero Pizarro and R. Vacarezza.—p. 1809.
Surgical Diathermy in Otorhinolaryngology: Present Condition. L. Samengo.—p. 1816.
*Treatment of Exophthalmic Goiter and Hyperthyroidism by Intravenous Injections of Sodium Fluoride. L. Goldemberg.—p. 1833.
Individual Constitution According to Italian School. D. Boccia.—p. 1837.
Paralytic Ileus of the Colon During a Myocardiac Syndrome. G. Costa Bertani.—p. 1879.
Symptomatologic Value of Thoracic Mobility Without Respiration. A. C. Menzani.—p. 1883.
Laws of Heredity in Pathology and Their Relations with Social Medicine. L. C. Perrusi.—p. 1884.

Treatment of Hyperthyroidism by Intravenous Injections of Sodium Fluoride.—Goldemberg states that animal experimentation has proved that fluorides retard development and produce the same results as if the young animal were thyroidectomized. One milligram of thyroxine in solution is precipitated by 0.01 Gm. of sodium fluoride, immediately on or after several minutes of contact. The logical next step is the administration of sodium fluoride in human hyperthyroidism. The author describes the good results obtained in twenty days with daily doses of from 40 to 60 drops of a 2 per cent aqueous solution of sodium fluoride, given by mouth in the first patient treated by the new method. However, intolerance to buccal medication in subsequent patients imposed the use of tentative intravenous injections beginning with 1 cc. of a 0.5 per cent aqueous solution, later changed to 1 per cent, then to 2 per cent and at last to the optimum of 2.5 per cent; the dose increasing to 5 cc., 10 cc., 25 cc. and even 35 cc. without any bodily intolerance or bad effect on the veins used for the injections. When the intravenous dose of fluoride is higher than 0.1 Gm. per injection, irrespective of the titer of the solution in use, patients complain, within ten minutes after the injection, of pain and cramps in the lumbar region or in the abdomen, lasting from five to ten minutes. Extravasation of some drops of the fluoride solution into the cellular tissue will produce local pain, burning and swelling which disappear in a few hours without leaving any local necrosis. Doses higher than 0.1 Gm. of fluoride or several daily injections will react with a polyuria of 4 or 5 liters of urine daily, intense thirst, nycturia and pollakiuria, but never with albuminuria and glycosuria. These symptoms disappear two or three days after suspension of the treatment. Therapeutic action of the fluoride is slow and progressive. The nervous symptoms disappear first, sleep returns, tachycardia diminishes and the palpitations vanish. The patient gains in weight, the basal metabolism becomes practically normal, the thyroidal swelling goes down and the exophthalmos, although not disappearing completely, is greatly reduced. The author uses a solution of 2.5 Gm. of pure sodium fluoride in 100 cc. of distilled water; the solution is filtered, put in 5 cc. ampules and sterilized in the autoclave. Injections are started with 3 cc. of this solution, gradually increased to 6 cc. and maintained until improvement sets in, then decreased to 4 cc. and continued until a series of from fifteen to twenty injections have been given. In the beginning, depending on the seriousness of the condition, injections are administered every day or every other day and later, when justified by the improvement, every three or every four days; from then on the series of injections alternate with rest and the whole treatment runs its course in from five to ten months. It is advisable to institute two or three series of injections annually during the subsequent two or three years. If treatment by mouth is desired to alternate with the injections, the solution is made with 2 Gm. of sodium fluoride or ammonium fluoride in 100 cc. of distilled water, and from 10 to 50 drops in milk are given four times a day during a period of fifteen to twenty days. In other words, the dosage increases steadily from 40 to 200 drops a day. Treatment by sodium fluoride may also be given to prepare the patient for surgical intervention in case of voluminous goiter and when the patient is in no condition to stand a protracted medical treatment.

Archiv für Kinderheilkunde, Stuttgart

95: 65-144 (Dec. 18) 1931

*Treatment of Asphyxia in the New-Born and of Dyspneic Conditions in the New-Born and in Nurslings by Means of Carbon Dioxide Gas Mixtures. R. Wiener.—p. 65.
Infantile Sudamina or Infantile Miliary Epidemic Exanthem: Its Clinical Aspects and Differentiation from Sudor Anglicus. A. Stroé and H Stroé.—p. 78.
Remarks on Preceding Article: Likeliness of Identity of Infantile Sudamina and Sudor Anglicus. Rietschel.—p. 89.
Cases of Pyuria Caused by Dysentery Bacilli. Z. Teveli.—p. 92.
Liver Therapy of Anemias in Nurslings. F. Strunz.—p. 98.

Treatment of Asphyxia in the New-Born by Means of Carbon Dioxide Gas Mixtures.—Wiener first discusses the various means and methods that are employed in the treatment of asphyxia in the new-born and in severe dyspnea in the new-born and in nurslings. Particular attention is given to carbon dioxide gas mixtures, which in recent times have found a wide application. Further, the author relates his experiences with carbon dioxide gas mixtures in twelve cases of asphyxia in the new-born, in twenty-three cases of severe dyspnea during the first days of life, in six cases of respiratory disorders and collapse in nutritional disturbances, and in seventeen cases of diseases of the air passages and of the lungs. On the basis of these observations he considers the use of carbon dioxide air mixtures and of carbon dioxide oxygen mixtures as that method, which in asphyxia of the new-born, as well as in dyspneic conditions of the new-born and of nurslings, is always applicable and in the majority of cases accomplishes its purpose.

Deutsche medizinische Wochenschrift, Leipzig

57: *2169-2194 (Dec. 25) 1931*

Clinical Significance of Pathologic Physiology. R. Siebeck.—p. 2169.
*Syndrome Frequently Observable in Commotio or Contusio Cerebri. L. Mann.—p. 2172.
Hockey Injury. A. Arnold.—p. 2175.
Epidemiology of Influenza in Last Three Years. R. Bihler.—p. 2177.
Simplification and Improvement of Heisler-Moro Apple Diet. S. Wolff.—p. 2178.
Functional Liver Diagnosis. B. Weicker.—p. 2179.

Syndrome Observable in Commotio or Contusio Cerebri.—Mann emphasizes that the detection of the general postcommotional syndrome is not sufficient, but that efforts should be made to detect certain groups of symptoms which indicate a definite cerebral localization. He admits that it is not entirely correct to designate such localized cerebral symptoms as signs of a commotio cerebri, for they are rather foci of contusion. However, it should be considered that between "commotio" and "contusio" there is only a quantitative difference. If the injurious force that strikes one portion of the brain is especially severe, a contusion is the result with its visible and permanent anatomic changes. Such symptoms of contusion may occasionally develop entirely without or with only slight commotional manifestations, but in the majority of cases the symptoms of contusion at first concur with those of commotio. The author then describes the syndrome that he observed most frequently in traumas of the brain. The symptoms are the following: 1. There is difficulty in directing the eyes to one side, while they can be readily directed to the other. 2. When the patient stands with closed eyes a swaying toward the same side is noted on which the visual direction is impaired. 3. In the past-pointing test a deviation to the same side is noted. 4. Frequently there is a unilateral absence of the normal oscillations of the arms during walking. 5. The hearing capacity is impaired on the side corresponding to the side with the impaired visual direction. 6. The reflexes of the cornea and of the nasal mucous membrane are reduced on the same side. 7. In addition to these local symptoms there are also generalized symptoms such as general vasomotor hypersensitivity, with acceleration of the pulse and a rushing of the blood to the head, and in some of the cases the pressure of the cerebrospinal fluid is increased. If all these symptoms are considered as a whole it can be seen that they are essentially coordination disturbances, and since the coordinatory functions are controlled mostly by the cerebellum and its tracts, the author assumes that the syndrome is characteristic for cerebellar disturbances or at least for the disturbances of the posterior cranial fossa. He goes even further in his attempts to localize the injury producing the described syndrome, by citing facts that indicate localization in the corpus restiforme.

Jahrbuch für Kinderheilkunde, Berlin

134: 1-128 (Dec.) 1931

Spring Catarrhs. K. Stolte.—p. 6.
Congenital Atresia of Ileocecal Valve. A. Wilke.—p. 10.
Strabismus in Early Childhood. R. Hessberg.—p. 15.
Acute, Generalized, Cutaneous, Miliary Tuberculosis During Childhood. E. Nedelmann.—p. 24.
Examination of Gastric Function by Means of Fractional Withdrawal R. Sperling and Elisabeth Jungbluth.—p. 29.
Epigastricus Parasiticus: Contribution to Casuistics on Double Monsters. K. Seynsche.—p. 40.
*Influence of Intramuscular Injection of Blood on Temperature and Clinical Course in Interlobar Pleurisy and in Other Diseases of the *Respiratory Tract. Berta Bals.—p. 51.*
*Endocardial Fibrosis of Young Nursling. Kathe Becker.—p. 64.
Pneumothorax Therapy of Tuberculosis in Nurslings and Its Significance for Increase in Resistance. Maria Paulus.—p. 72.
Observations During Epidemic of Anterior Poliomyelitis. Bossert.—p. 79.
Bite of Field Mouse Causing Disease Similar to Sodoku (Rat Bite Fever). Elisabeth Jungbluth.—p. 85.
*Acetarsone in Treatment of Congenital Syphilis. E. Nedelmann.—p. 89.
Severe Lipemia in Child with Diabetes Mellitus. Elisabeth Jungbluth. —p. 102.

Intramuscular Injection of Blood in Diseases of the Respiratory Tract.—Bals states that in recent years hemotherapy has found wider application in pediatrics. Interlobar exudates, which are often refractory to most therapeutic measures, were found to yield to intramuscular injection of blood. In chronic febrile diseases of the respiratory tract this form of hemotherapy proved likewise effective. The author recommends for such cases the intramuscular injection of small quantities (from 20 to 60 cc.) of whole blood. Of course, she does not wish to discredit intravenous blood transfusion, but she points out that intramuscular injection is more practical, since it makes preparatory serologic tests superfluous and also because its technic is simpler. Moreover, the small amounts of blood that are required are usually readily obtainable. Injurious effects of blood injections are unknown, and the resorption is usually rapid. Long periods of fever can often be shortened, and the disease can be cured more quickly by this form of hemotherapy. For this reason, intramuscular injection of blood should always be given a trial.

Endocardial Fibrosis of Young Nursling.—Becker observed indurated fibrosis in the left cardiac ventricle in a nursling, aged 3 months. She considers this endocardial fibrosis as the thrombogenic type for she assumes a causal relationship between the thrombophlebitis of the right leg, to which the mother was subject during pregnancy, and the endocardial fibrosis in the infant.

Acetarsone in Treatment of Congenital Syphilis.—Nedelmann maintains that acetarsone is the best substance for the treatment of syphilis in early childhood. Years of experience convinced him that acetarsone should not be given in several small series of treatments, but if possible should be completed in one series with sufficiently large doses. He confirms the roborant action of acetarsone but warns against the use of the preparation in nonsyphilitic conditions. For cases of hypersusceptibility to acetarsone he recommends intramuscular injections of a liver extract. He also reports investigations on the elimination of arsenic in the feces and in the urine of children treated with acetarsone.

Klinische Wochenschrift, Berlin

10: 2377-2408 (Dec. 26) 1931

Chronaxia. H. Quincke and J. Stein.—p. 2377.
*Fat Metabolism Hormone of Anterior Lobe of Hypophysis. K. J. Anselmino and F. Hoffmann.—p. 2380.
*Idem. F. Hoffmann and K. J. Anselmino.—p. 2383.
Metabolic Changes in Otosclerosis. H. Behrendt and J. Berberich.—p. 2386.
Serum Colloids in Normal and Pathologic Conditions. A. Schmitz.—p. 2388.
Bacteriologic and Serologic Investigations in Tuberculosis and in "Rheumatic" Diseases. H. Horster.—p. 2389.
Epicutaneous Tuberculin Reaction in Tuberculosis of Skin. E. Nathan and P. Kallós.—p. 2392.
Newer Tests of Cerebrospinal Fluid for Differential Diagnosis of Syphilitic Disease of Central Nervous System. A. Marchionini.—p. 2393.
Iodine Distribution Following Injection of Iodine Preparation. J. Olivet. —p. 2396.
Small Heart of Patients with Asthma. K. Hajós.—p. 2397.

Qualities of Fat Metabolism Hormone of Anterior Lobe of Hypophysis.—In the introduction Anselmino and Hoffmann call attention to the three principal actions of the anterior hypophysis, namely, its influence on growth, on the generative glands, particularly the ovaries, and on the fat metabolism. Disturbances in the fat metabolism, as observed in adiposogenital dystrophy or after extirpation of the anterior hypophysis, had led several authorities to assume a hypophyseal action on the fat metabolism, but it remained for the authors to detect, prepare and study the qualities of the hormone. After citing factors that indicate the existence of a hypophyseal hormone effective on the fat metabolism, they describe its preparation from the anterior hypophysis of beeves. The increase of the acetone body content of the blood of rats, to which that extract has been administered, is the test method for the hormone. With the aid of this test the authors determined also the chemical and physical qualities of the metabolic hormone, which are largely identical with the known qualities of the genitally active component of the anterior hypophysis. But in spite of this the metabolic hormone differs from the genitally active component. Factors are cited that establish the identity of the demonstrable acetone body increasing substance with the metabolic hormone. For the standardization of the hormone the authors recommend the rat unit and give its quantitative definition.

Effects of Fat Metabolism Hormone of Anterior Lobe of Hypophysis.—Hoffmann and Anselmino describe various metabolic and regulatory effects of the metabolic hormone of the anterior lobe of the hypophysis. Administered in sufficiently large doses to rats and also to human beings, the metabolic hormone effects acetone body formation, especially beta-oxybutyric acid formation, also a decrease in the basal metabolism and an increase in the specific dynamic action. The hormone is discharged when fat is burned in the organism. This regulatory significance of the metabolic hormone for fat combustion can be demonstrated in fat tolerance tests on human beings and in starvation tests on dogs. Finally the authors call attention to the significance of the metabolic hormone for a number of problems in normal and pathologic physiology.

Medizinische Klinik, Berlin

27: 1813-1848 (Dec. 11) 1931

Significance of Roentgen Diagnosis in Obstetrics. W. Liepmann.—p. 1813.
*Systolic Blood Pressure in Older Persons. H. May.—p. 1816.
Intravenous Combination Therapy in Acute Circulatory Insufficiency. H. Strauss.—p. 1818.
Sodium Dehydrocholate in Treatment of Melancholia. H. Hartmann and M. Weissmann.—p. 1819.
Aconite Therapy of Trigeminus Neuralgia. K. Rewicz.—p. 1821.
Toxic Polyneuritis Following Use of Abortifacient. L. Stanojević and V. Vujić.—p. 1821.
Peritonitis of Renal Origin. A. Stapf.—p. 1824.
Secretion of Fasting Stomach Following Parenteral Irritation and Test Drink. L. Dinkin.—p. 1825.
Dietary Regimens in Internal Diseases. W. David.—p. 1828.

Systolic Blood Pressure in Older Persons.—A review of the literature convinced May that the opinion prevails that in older persons the blood pressure is higher. He maintains, however, that clinical observations do not corroborate this. Tests on 518 persons, some of whom had circulatory disorders and some of whom did not, revealed that the "normal" (he prefers the term "rest blood pressure") is between 100 and

145 mm. of mercury in all age groups. The apparently contradictory results of former tests he explains as the result of a greater lability of the blood pressure in not resting persons beyond the age of 40 years. The question is discussed whether these blood pressure fluctuations may not be the precursor of the transitory and also of the fixed hypertensions.

27: 1849-1884 (Dec. 18) 1931

Clinical Aspects and Treatment of Perforating Gastric Ulcer. R. Mühsam.—p. 1849.
*Pathologic Significance of Bleeding Mamma. B. O. Pribram.—p. 1853.
Technical Improvement of Obliteration of Varicose Veins. G. Nobl.—p. 1855.
Origin and Evaluation of Trendelenburg's Phenomenon. W. Löwenstein and G. Kopřiwa.—p. 1857.
Therapy of Exudative Pleurisy During Childhood. A. J. Chura.—p. 1858.
Retrogastric Hemorrhage with Development of Cascade Stomach. J. Arendt.—p. 1859.
Congenital Total Hemihypertrophy. Esau.—p. 1861.
Course of Secretion of Fasting Stomach Following Parenteral Irritation and Test Drink. L. Dinkin.—p. 1864.
Blood Transfusion, Autohemotherapy and Serum Injection in Surgery. E. Sehrt.—p. 1866.
Sterilization and Interruption of Pregnancy. L. Gelpke.—p. 1867.
Dietary Regimens in Internal Diseases. W. David.—p. 1868.

Pathologic Significance of Bleeding Mamma.—Pribram shows that hemorrhage into the mamma usually takes place into preformed cysts. If such a cyst communicates with the main discharging duct, blood is discharged by the mammilla. But the discharge of blood is no indication of a malignant tumor. On the contrary, hemorrhages are a rarity in closed cancer of the mamma. The most common cause of hemorrhage of the mamma is an intracanalicular hemorrhagic cystepithelioma, a small tumor, which is regularly located in a cystic enlargement of one of the larger lactiferous ducts. This tumor takes a median position between benign and malignant growths, but it shows no tendency to relapse and metastasize. During long years of observation the author never observed a relapse, in spite of the fact that he never performed a radical amputation with removal of the lymph nodes but always confined himself to the extirpation of the mamma. This conservative surgical attitude seems the more justified because the majority of the patients were young women and usually the cyst formation was bilateral. However, it is necessary to keep such women under constant medical observation.

Zeitschrift für urologische Chirurgie, Berlin

33: 363-527 (Dec. 11) 1931

Ureteral Plastics and Implantation of Ureter. A. Baidin.—p. 363.
Renal Resection on Account of Extravesical Ureteral Ostium. A. von Adler-Rácz.—p. 398.
Spina Bifida and Upper Urinary Passages. E. Lehmann.—p. 406.
*Orifice of Ureter and Bladder Contraction. W. J. Israel.—p. 423.
*Function of Upper Urinary Passages Following New Implantation of Ureter Into Bladder. W. J. Israel.—p. 442.
Torsion of Testicular Appendix. V. W. Dix.—p. 486.
Significance of Elimination Pyelography for Estimation of Urinary Apparatus in Old Strictures of Urethra. F. Dannheisser.—p. 495.
Problem of Simultaneous Bilateral Nephrolithotomy or Pyelolithotomy. M. Mamikonoff.—p. 506.
Parametritis, Ureteral Stricture and Hydronephrosis. K. Boshamer.—p. 511.

Orifice of Ureter and Bladder Contraction.—In this paper Israel reports his studies on (1) the behavior of the ureteral orifice during the contraction of the bladder, and (2) the causes of an eventual closing. In regard to the first problem he states that experiments on dogs, in which vesical contractions were produced by faradic stimulation of the pelvic nerve, indicate that during vesical contraction, at least during the largest portion of its duration, the ureteral orifice remains closed and urine does not enter the bladder. This interval of time is termed the "micturition pause of the ureteral orifice." Thus the animal experiments corroborate the cystoscopic observations that Boeminghaus made on human beings during the voluntary evacuation of the bladder. To the second problem the author remarks that experiments on the open bladder prove that the increase of the intravesical pressure during contraction and thus the active valve mechanism of the relaxed bladder do not play an important part in development of the micturition pause. Experiments on ureters recently implanted into the bladder prove that the omission of the urinary spurts of the ureteral ostium during the contraction of the bladder is dependent neither on the normal distal termination of the ureter nor on muscular or nervous connections between bladder and ureter. The essential cause of the omission of the urinary spurts of the ureteral ostium during vesical contraction is the compression of the distal termination of the ureter by the surrounding vesical muscles. The significance of the ureteral closing during contraction of the detrusor lies not in the development of the pause in micturition of the ureteral ostium but in the prevention of the ureteral reflux.

Function of Upper Urinary Passages Following Implantation of Ureter into Bladder.—This report brings the continuation of the studies described in the preceding article. Israel discussing the problem whether the closure produced by the muscular contraction is sufficient to prevent reflux without the other devices. In the summary he states that the prevailing opinion that atony and reflux are necessary sequelae of resection and reimplantation of the ureter are erroneous. Observations on dogs that were killed eleven and twelve months after the operation indicate the possibility of a permanent effectiveness of the implantation. Experiments prove that in dogs the ostium can be secured against reflux without resorting to the oblique passage of the ureter through the vesicular wall and without depending on the valvular closure produced by that procedure. Indispensable and alone sufficient to secure the upper urinary passages against reflux are (1) in the bladder that is filling or relaxed, the capacity of the ureter to contract sufficiently; (2) during contraction of the bladder the compression of the vesical termination of the ureter by the vesical muscles. These two factors that secure the newly formed ostium explain, according to their efficacy or inefficacy, the following conditions: (*a*) cases in which following implantation of the ureter into the bladder, the upper urinary passages retain their normal function; (*b*) cases in which reflux develops on the distal termination of the ureter following its implantation or after other operations; (*c*) numerous cases of spontaneously developing reflux; (*d*) the rare cases of cure of reflux by implantation of the ureter into the bladder.

Zentralblatt für Gynäkologie, Leipzig

55: 3617-3680 (Dec. 19) 1931

Changes in Human Uterine Tubes During Pregnancy. K. Naumann.—p. 3618.
*Inflammation with Abscess Formation in Salivary Glands of the New-Born. B. Kriss.—p. 3624.
Narcolepsia Gravidarum. Z. von Szathmáry.—p. 3629.
*Lochia After Cesarean Operations. F. H. Bardenheuer.—p. 3636.
Therapy and Prognosis of Eclampsia on Basis of One Hundred and Seventeen Cases. B. von Kontsek.—p. 3639.
Therapy of Secondary Anemias in Gynecology. S. Julich.—p. 3644.
Behavior of Various Antispermatic Substances Within Female Genitalia. Hertha Riese.—p. 3647.

Abscess Formation in Salivary Glands of the New-Born.—Since former reports on this comparatively rare condition contain little about its pathogenesis, Kriss reports his investigations on this problem. Following the report of the clinical history of two cases he gives a general discussion of the clinical aspects and states that the therapy should follow general surgical principles. In regard to the bacteriologic conditions it is stated that staphylococci were found in the two reported cases and a number of other authorities observed the same; however, others observed streptococci, diplococci, Monilia albicans or a mixed bacterial flora. In a study of the pathogenesis of inflammation of the salivary glands in infants it is of course necessary to differentiate between the isolated inflammation of these glands and the inflammation as a partial manifestation of a generalized sepsis. The author discusses only the first form, for which there are two possibilities of pathogenesis, namely, a hematogenic and an ascending infection from the oral cavity. On the basis of his investigations he concludes that the isolated inflammation of the salivary glands is caused in the majority of cases by the ascent of pathogenic organisms from the oral cavity and invasion into the glands. For this mode of pathogenesis two factors are essential, namely, (1) the presence of pathogenic micro-organisms in the oral cavity of the new-born and (2) a factor that creates a predisposition. Investigations on the bacteriologic conditions in the oral cavity of the new-born revealed that shortly after birth the saliva is usually sterile but tests on nurslings between the first and eighth day of life revealed the presence of micro-organisms that can be considered pathogenic. In regard to the predisposing factors it is pointed out that in forceps deliveries the region of the parotid may be injured, and it is also emphasized that parotitis is especially frequent in premature infants, that is, in infants with lowered resistance against infections. Other predisposing factors may be high degree of virulence of the salivary bacteria, abnormalities in the excretory ducts of the glands and faulty sucking on the part of the child.

Lochia After Cesarean Operations.—Bardenheuer observed that after cesarean operations the lochia is surprisingly scanty and the involution of the uterus is more rapid than after normal delivery. As cause of this he considers the acidosis, which is produced by the postoperative starvation, for hunger, thirst and wound healing processes cause acidosis. He concludes that in normal puerperas the lochia could be reduced by giving for about eight days a diet like the one Herrmannsdorfer recommended for the treatment of wounds. This diet eliminates milk, potatoes, sausages, and most fruits and vegetables; the fluid intake is limited and seasoning with salt is avoided. Recommended are meat, fish, eggs, butter, lard, bread, foods prepared from flour, cheese, brussels sprouts, lentils, nuts, cranberries, lemon juice, cocoa, tea, coffee and honey. The fat intake should be high, but carbohydrates should be reduced.

Sovetskaya Klinika, Moscow

15: 387-596, 1931

Situs Inversus Viscerum. M. G. Solovey.—p. 387.
Peripheral Arteries of Brain Concomitant with an Underdevelopment of Carotid Artery. B. K. Gindtse and L. I. Freidman.—p. 395.
Clinical Aspect of Pernicious Anemia. K. Ya. Shkhvatsabaya.—p. 407.
Acute Myeloblastic Leukemia. A. I. Acharkan.—p. 417.
Clinical Aspect of Certain Anomalies of Large Intestine. V. N. Smotrov.—p. 427.
Changes in Gastric Secretion and Function of Intestine in Lowered Gastric Acidity Under Influence of Treatment. V. A. Alexandrov and D. I. Pavlov.—p. 439.
Multiple Polyposis of Colon. I. N. Sheftel.—p. 456.
Water-Salt Metabolism in Parkinsonism. V. N. Toparskaya and S. A. Chugunov.—p. 463.
Clinical Aspect and Pathology of Intraspinal Disks. S. S. Brusova and M. O. Santotskiy.—p. 473.
*Gas Analysis of Cerebrospinal Fluid in Nervous Diseases. A. E. Kulkov and M. E. Tarnopolskaya.—p. 482.
Value in Diagnosis of Cerebrospinal Fluid by Lumbar Puncture. M. I. Sokolov.—p. 502.
*Dry Pleurisy in Acute Rheumatic Infections of Children. L. D. Shteinberg and S. I. Kopeliovich.—p. 511.
Rheumatismal Corticopleuritis and Certain Factors in Pathogenesis of Rheumatism. N. V. Morakhovskiy.—p. 522.
Percussion in Broncho-Adenitis. N. N. Pisarevskiy.—p. 530.
Tuberculous Broncho-Adenitis in Adults. F. O. Gausman.—p. 536.
Clinical and Pathologic Aspects of Tuberculosis of Stomach and Liver. S. Genkin and I. Sosnovik.—p. 444.
Size of Erythrocytes in Tuberculosis. N. G. Vishnevskiy.—p. 555.
Professional Tendovaginitis Crepitans. G. D. Speranskiy.—p. 561.

Gas Analysis of Cerebrospinal Fluid in Nervous Diseases.—Kulkov and Tarnopolskaya as a result of their studies conclude that the carbon dioxide (alkali reserve) of the spinal fluid differs in disease. The largest determination for carbon dioxide of the spinal fluid (alkalosis) was found in dementia paralytica and epilepsy and one instance of alcoholism. Severe acidosis (decreased carbon dioxide) was found in various forms of meningitis, namely in toxemic forms, diffuse infection of the brain, encephalitis, diffuse sclerosis and symptomatic epilepsy. Determinations were normal in tumors of the brain and spinal cord and in tabes dorsalis. There was no greater tendency toward alkalosis in cerebrospinal syphilis. The relationship between carbon dioxide and other substances as globulins and chlorides was not studied. The authors noted an increase in carbon dioxide in tabetic atrophy of the optic nerves at the same time that other forms of tabes dorsalis gave normal carbon dioxide determinations.

Dry Pleurisy in Acute Rheumatic Infections of Children.—Shteinberg and Kopeliovich, in their examination of eighty-two children with rheumatism, diagnosed dry pleurisy and pericarditis in thirty-eight: nine patients with pleurisy and pericarditis, twenty-six with pleurisy alone, and one with pericarditis alone. They conclude that in the course of acute rheumatism one may also find a concomitant infection of dry pleuritis which runs its own clinical course. The presence of infection of the serous membrane is a frequent symptom of rheumatism. Dry pleurisy has a practical significance in the clinical prognosis of rheumatism (polyarthritis, chorea, carditis). Dry pleurisy may be the primary or the only symptom in rheumatic infection. In the course of the ambulatory forms of rheumatic endocarditis the condition may simulate the clinical picture of tuberculous intoxication. The relation of dry pleurisy of rheumatism to tuberculosis necessitates further study.

Vrachebnaya Gazeta, Leningrad

Nov. 15, 1931, number 21, pp. 1556-1633

*New Method of Treatment Using Specific Antidiphtheritic Serum. A. I. Yarotskiy.—p. 1559.
*Large Doses of Serum in Treatment of Toxic Diphtheria. A. B. Volovik.—p. 1567.
Neuropathy in Dystrophy of Meniscus Medialis. G. I. Turner.—p. 1574.
Mechanism of Action of Alcohol on Muscle and Nerve. M. R. Mogendovich.—p. 1580.
Relation Between Residual Nitrogen and Chlorides of Blood. Ya. Yu. Shpirt and E. S. Gliksberg.—p. 1582.
Bacteriophage in Treatment of Dysentery. S. N. Ruchkovskiy.—p. 1586.
*Fatality in Abortion Without Sufficient Hospitalization. A. Anufriev.—p. 1589.
Classification of Cerebrospinal Meningitis. N. G. Rubinshtein.—p. 1593.
Some Considerations on Epilepsy. V. M. Faybushevich.—p. 1596.

New Method of Treatment Using Antidiphtheritic Serum.—Yarotskiy believes the high mortality in diphtheria is unwarranted. It is possible to bring the mortality down to 0.4 per cent. He believes that smaller doses than 10,000 antitoxic units should not be used and in severe conditions this dose should be repeated within the same day and repeated in the following days until toxic symptoms disappear or become minimal. During treatment no days should pass without an injection of serum. The author describes his results in the treatment of 248 patients with various types of diphtheria. Horse serum was used throughout. The injections were performed intramuscularly.

Large Doses of Serum in Treatment of Toxic Diphtheria.—Volovik asserts that massive dosage in serum therapy is highly effective in uncomplicated toxic forms of diphtheria. In moderately severe forms, final injection of doses of from 100 to 125 thousand antitoxic units of serum decreased the mortality from 16 per cent to zero; in very severe forms, injection of doses of from 200 to 300 thousand units of serum with an initial dose of 100 thousand antitoxic units decreased the mortality from 69 to 30 per cent. However, in hemorrhagic forms, large doses of serum did not bring about similar remarkable recoveries—mortality was decreased from 88 to 64 or 65 per cent. This may be explained by the premature presence of cardiac disturbance.

Abortion Without Sufficient Hospitalization.—Anufriev asserts that in the proceedings of the convention of obstetricians and gynecologists at Kiev in 1927-1928 it was decided that abortion was not an inconsequential surgical intervention and therefore could not be performed without hospitalization. It was reported that after the intervention there is a change in the reaction of the vaginal secretion and at the third day there is a microbic flora in the uterus (staphylococcus or bacilli) that indicates infection. It was decided that postoperative supervision should be continued for at least three weeks after abortion. Most postoperative disturbances occur in the endometrium: incomplete regeneration and the presence of necrotic tissue open the road to infection. Abortion was considered an important factor in the decrease of subsequent pregnancies in young women. It was decided that the medical profession should insist on hospitalization of patients during and after surgical abortion.

Hospitalstidende, Copenhagen

74: 1019-1034 (Oct. 22) 1931

Spondylolisthesis (Cont.). J. M. Wollesen.—p. 1019.
*Intracranial Aneurysm in Girl Aged Six Years. K. K. Ortmann.—p. 1026.
Sense of Vibration in Neuralgias. F. Bro.—p. 1031.

Intracranial Aneurysm in Girl Aged Six Years.—Necropsy disclosed that the sudden death without preceding illness in the case described by Ortmann was due to an extensive subarachnoid hemorrhage from the rupture of a sacculated aneurysm of the right anterior cerebral artery. Microscopically a distinct defect was seen in the media of the artery at the seat of the aneurysm. The author is inclined to believe that an embolic process during the child's grave diphtheria at the age of 3 had led to the formation of the aneurysm at this already weak place in the arterial system.

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PNEUMOCOCCUS TYPE II PNEUMONIA

A CLINICAL AND BACTERIOLOGIC STUDY OF ONE THOUSAND CASES, WITH ESPECIAL REFERENCE TO SERUM THERAPY *

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In a previous article, we [1] have analyzed 1,161 cases of pneumococcus type I pneumonia treated in the wards of Bellevue Hospital, and have pointed out the beneficial effect of serum therapy in this type of infection. In the present article, we propose to discuss pneumococcus type II pneumonia and to report our results in the treatment of this disease with specific antipneumococcus serum. This investigation comprises 1,000 cases of type II pneumonia from the wards of Bellevue Hospital, and covers a consecutive series except for the year 1925-1926, which is not included because the records for that winter are incomplete. So far as we know, this is the first clinical study ever published in which pneumococcus type II pneumonia is considered as a separate entity. In 1927, Baldwin and Rhoades [2] contributed an article on the specific therapy of type II pneumonia, in which they discussed the effect of type II antipneumococcus serum on twelve cases, but there has been no detailed presentation of this type of pneumonia as a clinical entity.

BACTERIOLOGIC METHODS

From 1920 to 1929, the mouse method of typing sputum described by Avery, Chickering, Cole and Dochez [3] was employed as a routine. The objection to this method lay in the amount of time it involved. On the average, reports were not obtained in less than from eighteen to twenty-four hours, which meant serious delay in the institution of serum treatment. Since 1929, a combination of the original mouse method and the Krumwiede [4] and Sabin [5] methods of typing has been employed, and this procedure has enabled the laboratory worker to report the pneumococcus type on a high percentage of cases within from one to five hours. The actual routine is as follows:

> The best specimen of sputum obtainable is sent to the laboratory as soon as the diagnosis of pneumonia has been made. A portion about the size of a bean is emulsified in physiologic solution of sodium chloride and from 0.5 to 1 cc. of this is injected into the peritoneal cavity of a mouse. The remainder of the sputum is typed by the Krumwiede method.[4] If the test gives a positive reading, it is usually accurate. If it is negative or unsatisfactory, the Sabin [5] microscopic method of typing is used by withdrawing a few drops of peritoneal exudate from the mouse and carrying out the agglutination reactions on a glass slide. If neither the Krumwiede nor the Sabin method gives positive reactions, the original mouse method of tube-agglutination and precipitation is performed in full.
>
> If no sputum is available, a generous swab is made from the posterior pharynx and transferred to a tube of broth, which is allowed to incubate for two hours at a temperature of 37 C. One cubic centimeter of this culture is then injected into the peritoneum of a mouse, and microscopic or macroscopic typing is performed as previously outlined. Sputum, of course, is preferable, but the swab method, if properly carried out, gives accurate results. All readings, by whatever method obtained, are confirmed by typing the cultures obtained from the heart's blood of the mouse.

During the past three years, blood cultures were performed on all patients with lobar pneumonia shortly after their admission, and these were repeated daily on patients whose first blood culture was positive, and also on all patients who failed to improve under treatment. The usual procedure was to withdraw 3 cc. of blood from the patient's vein and add 1 cc. to a tube of broth and 1 cc. to each of two pour plates.

Routine cultures were also made from all pleural, pericardial and synovial exudates.

Accuracy of the Combination Method of Typing.—During the season of 1929-1930, specimens of sputum from 196 patients with lobar pneumonia were typed by the rapid methods. Fifty-eight of the 196 cases proved to be pneumococcus type II infections, as checked by cultures from the mouse's heart's blood. Of these fifty-eight cases, twenty-eight provided enough tenacious sputum to be tested by the Krumwiede method, and twenty-five of the twenty-eight gave a sharply positive reaction. In other words, 43 per cent of authenticated type II pneumonias were accurately typed by the Krumwiede method, and in fifty-two of the fifty-eight cases, or 90 per cent of the type II series, positive results were obtained with either the Krumwiede or the Sabin method. Thus, by using one or the other of these rapid methods of typing, 90 per cent of the fifty-eight type II pneumonias were accurately typed in less than five hours, and 43 per cent were successfully typed by the Krumwiede method in less than one hour. The Krumwiede method gave no false readings; the Sabin method only two.

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[1] Cecil, R. L.; and Plummer, Norman: Pneumococcus Type I Pneumonia, a Study of Eleven Hundred and Sixty-One Cases, with Especial Reference to Specific Therapy, J. A. M. A. **95**: 1547-1553 (Nov. 22) 1930.

[2] Baldwin, H S.; and Rhoades, D. R.: The Specific Therapy of Pneumococcus Type II Pneumonia, Am. J. M. Sc. **174**: 191 (Aug.) 1927.

[3] Avery, [illegible] le, Rufus; and Dochez, A. R.: Acute Lobar [illegible] erum Treatment, Monograph 7, Rockefeller I[illegible], Oct. 16, 1917.

[4] Krumwiede, Charles, Jr., and Noble, W. C.: A Rapid Method for the Production of Precipitin Antigen from Bacteria: An Attempt to Apply It to the Determination of the Type of Pneumococcus in Sputum, J. Immunology **3**: 1-10 (Jan.) 1918.

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INCIDENCE

Of the various types of lobar pneumonia, pneumococcus type II ranks second in frequency, being exceeded only by the type I group. Table 1 indicates the relative incidence of the dominant types. In an analysis of 4,310 pneumococcal pneumonias, type I infections were most frequent, comprising 32.1 per cent of the whole series; type II came second with an incidence of 23 per cent, almost a fourth of the series; type III made up only 11.1 per cent. Group IV, which includes a large number of infrequent types, comprised 33.8 per cent. These figures, of course, apply to Bellevue Hospital only, but they agree fairly well with those of other institutions. For example, Avery, Chickering, Cole and Dochez[3] report an incidence of 29.3 per cent of type II pneumonia in a series of cases from the Hospital of the Rockefeller Institute, while Park, Bullowa and Rosenblüth[6] found a considerably lower incidence, only 15.6 per cent of type II infections in a series of 793 cases studied at the Harlem Hospital.

Table 1.—*Incidence of Pneumococcus Types in Lobar Pneumonia, Bellevue Hospital, 1920-1931* *

Pneumococcus	Number of Cases	Percentage of Incidence
Type I	1,384	32.1
Type II	991	23.0
Type III	477	11.1
Group IV	1,458	33.8
Total	4,310	

* 1925-1926 cases are omitted from this series.

Incidence of Type II Pneumonia in Children.—In a series of 329 cases of pneumonia in children at Bellevue Hospital (recently reported by Raia, Plummer and Schultz),[7] only 9 proved to be of type II origin. Three of these occurred in children under 3 years of age, the remaining six in children between 3 and 12 years of age.

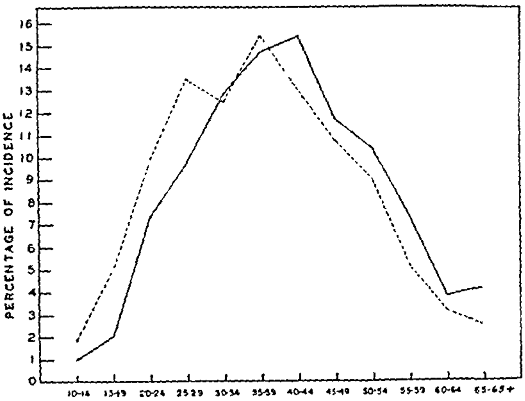

Chart 1.—Age distribution of type I and type II pneumonia, Bellevue Hospital, 1920-1931: solid line, type II pneumonia; broken line, type I pneumonia.

Incidence According to Age.—The age incidence of type II pneumonia corresponds fairly closely with that of type I. In reporting our previous studies,[8] we stated that pneumococcus type I pneumonia was particularly common in young people. This is true also of type II infection, but the difference in age distribution is not as striking as we had anticipated. Thirty per cent of our type I cases occurred in patients under 30 years of age; only 20 per cent of the type II series came within this age limit. This difference is offset by a slightly higher incidence of type II pneumonia in patients between the ages of 30 and 50, and also in those above 50. In table 2 the incidence, according to the various decades, is compared and this is shown graphically in chart 1. From this table the inference can justly be drawn that both type I and type II pneumonia occur chiefly in persons who are still leading active lives and are exposed frequently to contact infections.

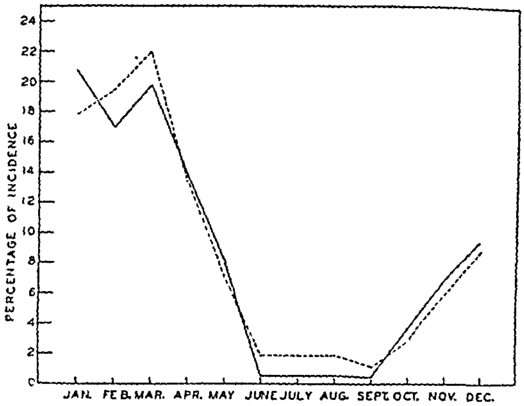

Chart 2.—Seasonal distribution of type I and type II pneumonia, Bellevue Hospital, 1920-1931: solid line, type II pneumonia; broken line, type I pneumonia.

In chart 2 the incidence by month of pneumococcus type II pneumonia is compared with that of type I infection. Here, the two types are more closely parallel. For both types the highest incidence is in January, February and March, and the lowest, during the summer months.

Table 2.—*Incidence of Type I and Type II Pneumonia According to Age, Bellevue Hospital, 1920-1931* *

Age	Type I Cases	Incidence, per Cent	Type II Cases	Incidence, per Cent
10-19	94	6.8	30	3.1
20-29	325	23.6	165	16.8
30-39	387	28.0	271	27.6
40-49	298	21.6	266	27.1
50-59	195	14.1	174	17.7
60 and over	81	5.9	76	7.7
Total	1,380		982	

* 1925-1926 cases are omitted from this series.

CLINICAL FEATURES

In our analysis of pneumococcus type I pneumonia, we spoke of type I pneumonia as a typical form of the disease. The same statement applies to the type II infection. Cole,[9] in his De Lamar lecture, states that type I pneumonia and type II pneumonia should be considered specific infectious diseases, just as typhoid is recognized as a specific infection. We are completely in harmony with this point of view. In our experience, it has not been possible to distinguish type I from type II pneumonia clinically, though perhaps it is safe to say that patients with type II infection tend to be more toxic and that their sputum is more prone to be markedly rusty and tenacious.

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[7] Raia, Antoinette; Plummer, Norman; and Shultz, Selma: New Types of Pneumococci in the Pneumonias of Children, Am. J. Dis. Child. **42:** 57-68 (July) 1931.

[8] Cecil, R. L.; Baldwin, H. S.; and Larsen, N. P.: Lobar Pneumonia; a Clinical and Bacteriologic Study of Two Thousand Typed Cases, Arch. Int. Med. **40:** 253-280 (Sept.) 1927.

[9] Cole, R. I.: Acute Pulmonary Infections, De Lamar Lectures, 1927-1928, Baltimore, Williams & Wilkins Company, 1928.

COMPLICATIONS

The incidence of complications in type II pneumonia varies but slightly from that in type I, except in respect to empyema, which occurs about half as frequently in the former as in the latter group. This is shown not only in the table of clinical complications (table 3) but also in the table of complications listed from autopsy observations (table 4). In Locke's study of 478 cases of empyema,[10] the preponderance of pneumococcus type I complications in the pleura is much more marked than in our own series. He found that in forty-nine cases of empyema 48.4 per cent yielded pneumococcus type I, while only 5.2 per cent were of type II origin.

It is interesting to note, as shown in table 4, that pneumococcus endocarditis occurred twice as frequently in type II as in type I pneumonia. This is probably related to the high incidence of pneumococcus bacteremia in type II pneumonia, a feature that will now be discussed.

BACTEREMIA

In a total of 202 cases in which no serum was administered, 162, or 46.4 per cent, showed type II pneumococci in the blood, yielded by culture at some time or other during the course of the disease. This is considerably higher than the figure which we obtained for type I pneumonia (29.7 per cent) and goes far to explain why type II pneumonia is such a serious infection.

TABLE 3.—*Complications in Type I and Type II Pneumonia of Adult Patients*

Complications	Type I (1,131 Cases)	Percentage of Incidence	Type II (991 Cases)	Percentage of Incidence
Empyema	73	6.5	38	3.8
Meningitis	20	1.8	24	2.4
Acute arthritis	10	0.9	5	0.5
[illegible]	7	0.6	3	0.3
[illegible]	4	0.4	12	1.2
Phlebitis	5	0.5	8	0.8
Pleurisy with effusion	26		15	
Cellulitis	32		17	
[illegible]	26		24	
	3		..	
	4		5	
	5		2	

MORTALITY RATE

Table 5 shows the annual mortality rate for type II pneumonia from 1920 to 1931. None of the patients listed in this table received serum. The annual rate varies from 38.7 to 57.2 per cent. Some of this variation, perhaps most of it, is due to the fact that the number of cases for each year is comparatively small. The total of 441 cases showed a death rate of 48.8 per cent. In other words, practically half of the type II pneumonias at Bellevue Hospital end fatally. While the result is consistent with the type of patient treated in this hospital, it is interesting to compare this death rate with that of 28.5 per cent reported by Cole[9] from the Hospital of the Rockefeller Institute, and with that of 30 per cent reported by Park, Bullowa and Rosenblüth[6] in the Harlem Hospital. Undoubtedly, the general physical condition of the patient has a great deal to do with the outcome in this as in other types of pneumonia. We have reason to believe that the high incidence of alcoholism is a factor in the high death rate at Bellevue.

Our figures show a definite relationship of bacteremia to the mortality rate in type II pneumonia. In the series that received no serum, sixty-four cases with bacteremia showed a death rate of 87.5 per cent, while seventy-one cases with sterile blood cultures yielded a death rate of only 8.5 per cent. The close relation between bacteremia and the mortality rate has been stressed in our previous studies and by other observers, but it is particularly well illustrated in pneumococcus type II infections.

TABLE 4.—*Complications in Type I and Type II Cases—Autopsies*

Complications	Type I (52 Cases)	Percentage of Incidence	Type II (79 Cases)	Percentage of Incidence
Empyema	14	26.9	9	11.4
Meningitis	6	11.5	10	12.7
Endocarditis	3	5.8	9	11.4
Suppurative pericarditis	2	3.8	2	2.5
Lung abscess	1	1.9	3	3.8
Miliary lung abscess	2	3.8	3	3.8

The death rate for type II pneumonia at Bellevue Hospital is almost twice as high as that for type I, 48.8 per cent versus 28.2 per cent. It is interesting to note how closely these figures compare with the incidence of bacteremia in these two types of pneumonia:

Type	Bacteremia Per Cent	Death Rate Per Cent
Pneumococcus type I pneumonia	29.7	28.2
Pneumococcus type II pneumonia	51.1	48.8

The mortality is not only closely related to the presence or absence of bacteremia but is also dependent in great measure on the number of organisms present in the blood stream. Three patients who received no serum showed 22, 25 and 68 colonies of type II pneumococcus in their blood culture plates but, in spite of this handicap, recovered. Except for these three cases, no patient recovered who had more than 5 type II pneumococci per cubic centimeter of blood. This statement, of course, applies only to patients who received no serum. The serum-treated patients will be discussed later.

There also appears to be some difference in the significance of early and late bacteremia. An early bacteremia, if not severe, is sometimes overcome; that developing late in the disease is practically always fatal.

TABLE 5.—*Annual Mortality Rate of Patients with Type II Pneumonia Not Receiving Serum, Bellevue Hospital*

Year	Number of Cases	Deaths	Mortality Rate
1920-1921	32	13	40.6
1921-1922	42	17	40.5
1924-1925	30	15	50.0
1926-1927	31	15	48.4
1927-1928	77	44	57.2
1928-1929	69	34	49.3
1929-1930	62	24	38.7
1930-1931	98	53	54.1
Total	441	215	48.8

The mortality rate for type II pneumonia varies, of course, with the age. Between the ages of 20 and 30 the death rate in the present series was only 22.2 per cent, while in patients over 60 the death rate was 78.5 per cent. The mortality rate was also closely related to the complications. All the patients who developed pneumococcus meningitis, endocarditis or peritonitis died. Thirty-eight patients with empyema showed a death rate of 50 per cent.

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[10] Locke, E. A.: Acute Empyema, New England J. Med. **203**: 391-398 (Aug. 28) 1930.

SPECIFIC TREATMENT

In our recently published study of pneumococcus type I pneumonia, we reported a series of 239 cases of type I infection treated with concentrated and refined antipneumococcus serum, compared with a control series of 234 untreated cases. The death rate in the latter was 31 per cent, as compared with only 20 per cent in the serum-treated cases, and there was a still further reduction to 11.2 per cent in cases treated within seventy-two hours after onset. From experimental, clinical and statistical evidence, we concluded that type I antipneumococcus serum, when administered early and in adequate doses, usually yielded satisfactory results.

During our study of the specific treatment of type I pneumonia, we became interested in the subject of serum therapy for type II pneumonia. Since the death rate in type II infections is approximately twice that in type I, the need of some form of specific treatment is obvious. Furthermore, there is such a close bacteriologic relationship between pneumococcus type I and pneumococcus type II, and so much clinical resemblance in the infections which they produce, that a certain similarity in their response to specific serum would seem reasonable. However, certain fundamental differences between the two diseases do exist. In the first place, the very fact that type II pneumonia is such a fatal infection means that, in order to be efficacious, a serum must be administered early in the course of the disease and must be of high potency. Secondly, according to the work of Dochez and Avery,[11] there is a greater amount of soluble substance in the blood and urine of a patient with type II pneumonia than in that of a patient with a type I infection. The serum, to be efficient, must neutralize all this soluble substance and must eliminate from the blood stream the pneumococci which are usually present in severe cases. This again calls for the administration of a highly potent serum early in the disease. Attempts to meet these requirements encounter great difficulties because, although it is important to have a highly potent serum for the treatment of type II pneumonia, the serum produced by immunizing horses against pneumococcus type II is usually much lower in content of agglutinins, precipitins, and other protective bodies than a good type I serum.

In a previous article, we pointed out the experimental, clinical and statistical evidence that has been accumulated in favor of type I serum, but so far the evidence in support of type II serum is largely of a theoretical or experimental nature. Various laboratory animals can be immunized with killed cultures against pneumococcus type II infection, and mice can be uniformly saved from a fatal type II sepsis if sufficient type II serum is injected simultaneously with the culture. Cecil and Steffen[12] found that Huntoon's pneumococcus type II antibody solution possessed the faculty of sterilizing the blood in type II pneumonia in monkeys, provided the sepsis was not too severe at the time the serum was introduced. So far as clinical evidence in favor of an efficacious type II serum is concerned, there is some difference of opinion. Cole,[13] for example, treated a small series of type II pneumonias with homologous antipneumococcus serum and was quite discouraged with the results obtained. In 1917 Avery, Chickering, Cole and Dochez[3] said: "The serum of type II is much less efficacious. Indeed, it has not yet been thoroughly demonstrated whether it has any practical effect on the outcome of the disease or not." Cole's explanation of the inefficacy of type II serum was that it was not sufficiently potent. He says: "Whereas the horse serum against type I infection is of such a strength that 0.2 cc. will regularly protect a mouse against 0.1 cc. of virulent culture, it has been impossible to produce an immune type II serum of any greater activity than that 0.2 cc. will protect a mouse against 0.01 cc. of culture."

Ten years later, however, we were able to obtain from the New York City Board of Health a type II antipneumococcus serum of such potency that 0.2 cc. would protect a mouse against 0.2 cc. of virulent type II culture. In other words, the serum was twenty times as potent as that employed by Cole and his co-workers in their therapeutic experiments with type II serum. The results obtained with this serum were more encouraging than those reported by Cole and were made known in an article by Baldwin and Rhoades[2] in 1927. These writers succeeded in sterilizing the blood of a small number of patients with type II pneumonia, and, furthermore, they noted some rather striking clinical reactions in certain type II cases which they had treated early in the course of the disease.

These earlier investigations with type II antipneumococcus serum demonstrated quite clearly that if the serum were to be of any value at all it would have to be employed in a highly concentrated form. Gay and Chickering,[14] in 1915, found that by mixing immune serum with a solution of pneumococcus bodies of the same type, a precipitate was formed which contained most of the protective substance of the serum. This could be dissolved in an akaline medium and a clear solution of pneumococcus antibodies obtained. In 1921, Huntoon[15] modified this method, using the washed pneumococcus bodies, and thus produced a therapeutic agent practically free from serum protein, and fairly potent in protective substance against type I and type II pneumococcus. Felton,[16] in 1924, found that practically all the protective substance could be obtained in a precipitate formed by adding the serum to a large amount of distilled water. More recently, Felton[17] has combined the salting-out method of Avery with his own, to refine and concentrate to a further degree the pneumococcus serum for therapeutic use.

INVESTIGATION AT BELLEVUE HOSPITAL

Our first experience with the specific treatment of type II pneumonia was in 1920, when we undertook to investigate the immunologic and therapeutic properties of Huntoon's "pneumococcus antibody solution." This product was not a serum but an aqueous solution of immune bodies which had been removed from antipneumococcus serum by adding to it an excess of pneumococci and later dissociating the immune substances from the bacteria. Huntoon's antibody solution was polyvalent, but its protective power against type II was not as high as against type I. The results of our two years' experience with Huntoon's antibody solution[18] have been published in full. Eighty-three cases of type II pneumonia, admitted to six medical wards of Bellevue Hospital, were treated with antibody solution and showed a death rate of 27.7 per cent. Sixty-seven control cases, admitted to six other medical wards during the same period of time, received no specific treatment and showed a death rate of 40.3 per cent. These figures were slightly in favor of the treated group, but the series was too small to have much significance. Because of its low potency and its tendency to produce severe chills, we abandoned the use of Huntoon's antibody solution in 1922. This experiment, however, showed the desirability of obtaining some form of purified serum. Huntoon's antibody solution was practically free from horse protein, so that its administration was never followed by anaphylactic reactions or serum sickness.

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[14] Gay, [illegible] H. T.: Concentration of the Protective Bodies in [illegible] by Means of Specific Precipitation, J. Exper. [illegible]

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[17] Felton, L. D.: Concentration of Pneumococcus Antibody, J. Infect. Dis. **43**: 543-553 (Dec.) 1928.

FELTON'S CONCENTRATED SERUM

From 1924 to the present time, Felton's concentrated antipneumococcus serum has been used at Bellevue Hospital. The method of preparation of this serum has been described in previous articles by us and in Felton's own papers.[19] The finished product is a slightly opalescent aqueous solution, rich in pneumococcus immune bodies.

Table 6.—*Comparison of the Common Immunologic Reactions of Type II Pneumococcus Serum and Its Concentrate (Felton)*

	Serum	Concentrate
Precipitins	25–100*	200–2,000
Agglutinins	20	300
Complement fixation	20	120
Opsonins	40	320
[illegible]	5 × 10²	2 × 10⁵
[illegible]	400	3,000
[illegible]	25	300

* The figures indicate the highest dilutions giving positive reactions.
† The figures indicate the actual number of bacteria killed.

The potency of Felton's serum varies with different lots, but manufacturers overcome this difficulty by pooling the serum from several horses. The actual ratio of the potency of the concentrated to that of the unconcentrated serum has been difficult to determine, for the reason that laboratories have employed different methods of standardization. Felton,[20] however, has recently published an article in which he presents a comparison of the common immunologic reactions of unconcentrated serum with those of the concentrated product. This is shown in table 6. The concentrated type II serum was prepared from a certain lot of standard serum and then compared with the original serum in respect to its content of immune bodies. It was found to contain far more precipitins, agglutinins, opsonins and other protective substances than the original serum. The difference in protection is particularly marked and in this experiment indicates that the concentrate was about eight times as potent as the unconcentrated serum.

From 1924 to 1930 we conducted a carefully controlled therapeutic experiment with Felton's serum on patients with type II pneumonia. The alternate case method was used in our investigation; that is, every patient diagnosed as having lobar pneumonia was given a number, and those with even numbers received serum, while those with odd numbers served as controls. The method of administering the concentrated serum has been described in detail in a previous article. After a preliminary test for sensitiveness to horse serum, 5 cc. of concentrated serum was slowly injected intravenously. If no reaction occurred, from 10 to 20 cc. was introduced into the blood stream one or two hours later, the dose depending on the potency of the preparation and the severity of the case. In general, we tried to administer from 100,000 to 200,000 units (from 40 to 100 cc.) during each twenty-four hour period until the patient showed definite signs of recovery or until it was evident that the serum was exerting no influence whatever on the disease.

The effect of type II serum on the clinical course of the disease is not by any means as striking as that produced by serum in type I pneumonia. Even when patients are treated very early, a rapid drop in temperature with concomitant improvement is rarely achieved. There is, however, a definite impression among most of the clinicians who have followed type II serotherapy that the symptoms of toxemia are usually less pronounced in the treated cases.

EFFECT ON BACTEREMIA

One of the most important problems in this study was to determine the effect of type II serum on pneumococcus type II bacteremia. As has already been stated, the outcome of a case of type II pneumonia depends to a great extent on whether or not the blood remains sterile. The figures cited in the untreated cases showed a mortality rate of only 8.5 per cent when the blood cultures remained negative, as against 87.5 per cent when the patients became septic. Furthermore, only two of the patients in our entire control series whose blood contained more than 10 type II organisms per cubic centimeter recovered. With these facts in mind it seemed reasonable to assume that, if concentrated serum was potent enough to sterilize the blood, it would have a favorable effect on the outcome of the disease.

Under certain circumstances, Felton's type II serum has, without doubt, the capacity to sterilize the blood and to keep it sterile. In most of the early cases with beginning septicemia the blood culture became negative when sufficient serum was administered, and as a result the chances of recovery seemed to be greatly increased. Charts 3 and 4 show the clinical courses of two such cases. In both patients, a definite therapeutic effect was apparently achieved by the prompt administration of serum. At any rate, they show a course not taken by our control cases. Large amounts of serum will practically always sterilize the blood of even late type II cases with marked sepsis, but this accomplishment usually has no effect on the final outcome of the disease. A remarkable case in our series had innumerable colonies of type II pneumococcus in the blood on admission, as shown in a 1 cc. pour-plate culture. The blood was successfully sterilized with large amounts of serum, but empyema developed, followed by a lung abscess, and the patient died eight months later.

Chart 5 clearly shows that sepsis was more marked in the treated patients who recovered than in the controls. *Twenty-three septic patients who received serum recovered while only ten without serum got well.* The maximum number of organisms in 1 cc. of blood was 333 in the treated series; 68 in the control. Furthermore, nine of the serum treated group had more than 10 pneumococci in each cubic centimeter of blood; only two of the control group had such a quantity.

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[18] Cecil, R. L., and Larsen, N. P.: Clinical and Bacteriologic Study of One Thousand Cases of Lobar Pneumonia, with Special Reference to the Therapeutic Value of Pneumococcus Antibody Solution: Preliminary Report, J. A. M. A. 79: 343-348 (July 29) 1922.

[19] Felton (footnotes 16 and 17).

[20] Felton, L. D.: The Concentration of Antipneumococcus Serum, J. A. M. A. 94: 1893-1896 (June 14) 1930.

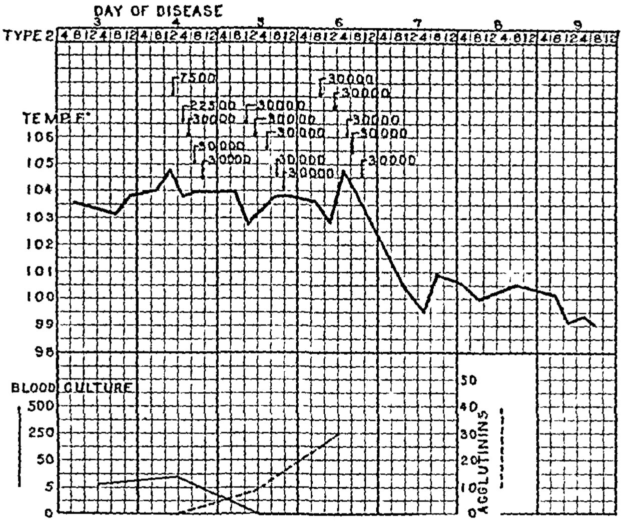

Chart 3.—Temperature, results of blood culture, and agglutinin titer of F. H., aged 26, with type II pneumococcus pneumonia, admitted to Bellevue Hospital on the third day of his illness. The blood culture on the day of admission showed 8 type II pneumococci per cubic centimeter of blood, and on the next day, the fourth day of the patient's illness, 22 organisms. On that day, 80 cc. (120,000 units) of Felton's concentrated serum was given intravenously, and the following day the blood was sterile with a moderate amount of type II agglutinins. On the fifth and sixth days, serum therapy was continued (100 cc., 150,000 units each day). The blood remained sterile, the agglutinins rose rapidly, and the patient had a temperature crisis on the seventh day.

Since 1928, blood cultures have been taken as a routine on all patients included in the type II series. In the septic cases the mortality rate for the control group has been 88 per cent; for the treated group, 69 per cent. The capacity on the part of type II serum to prevent bacteremia is further shown by the fact that, while 91 per cent of the untreated patients who died had positive blood cultures, 74 per cent of the treated died with bacteremia.

Table 7.—*Comparison of Mortality Rate in Cases Treated with Felton's Concentrated Serum and Control Cases**

	Treated			Control		
Year	Cases	Deaths	Mortality, per Cent	Cases	Deaths	Mortality, per Cent
1924-1925	30	10	33.3	29	14	48.3
1926-1927	29	12	41.4	31	15	48.4
1927-1928	73	28	38.4	71	38	53.5
1928-1929	64	30	46.8	64	29	45.3
1929-1930	56	22	39.3	58	20	34.5
Total	252	102	40.5	253	116	45.8

* Patients dying within twenty-four hours are not included.

EFFECT OF TYPE II SERUM ON MORTALITY RATE

The effect of concentrated type II serum on the mortality rate of type II pneumonia is indicated by the year in table 7. Altogether 252 cases of type II pneumonia have been treated with concentrated type II serum, with a death rate of 40.5 per cent, while 253 alternate controls show a mortality of 45.8 per cent. The difference in the rates of the two groups is certainly not striking. Furthermore, it will be noticed that for two seasons the death rate in the treated series was slightly higher than that in the control.

It is interesting to compare the results of serum treatment in type II pneumonia at Bellevue Hospital with the results of well controlled series in other institutions. In table 8 the results of previously published studies are summarized. This comparison suggests more promising results for type II serum than were indicated in our own experience. All these investigators used Felton's serum and each used the alternate case method of control. In the total series the mortality rate in 232 cases of type II pneumonia treated with Felton's serum is 31.4 per cent, while in the 224 control cases it is 43.3 per cent.

Table 8.—*Comparison of Mortality Rate in Cases Treated with Felton's Concentrated Serum and Control Cases*

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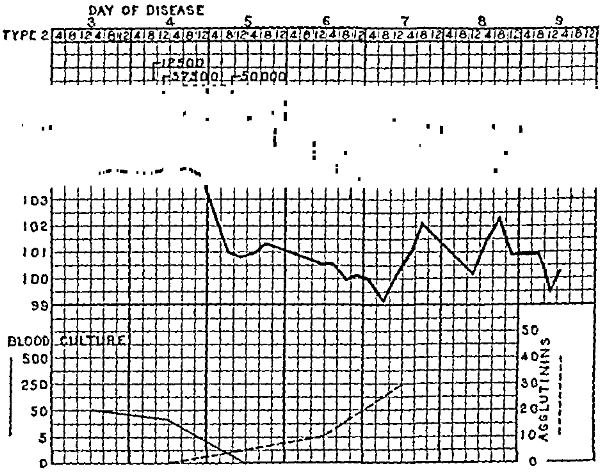
Investigators	Cases	Deaths	Mortality, per Cent	Cases	Deaths	Mortality, per Cent
Finland: New England J. Med. **202**: 1244 (June 26) 1930	39	11	28.2	32	11	34.4
Park, Bullowa and Rosenblüth [6]	56	13	23.0	61	18	30.0
Baldwin: Am. J. M. Sc. **181**: 788 (June) 1931	35	9	25.7	29	15	51.7
Cecil and Sutliff: J. A. M. A. **91**: 2035 (Dec. 29) 1928*	102	40	39.2	102	53	52.0
Total	232	73	31.4	224	97	43.3

* This series is included in the present study.

Although our own figures gave little, if any, evidence in support of type II concentrated serum, the more favorable results obtained by other investigators, as well as our own encouraging experience in early septic cases, led us in the fall of 1930 to continue the investigation. At that time, however, it was decided to limit serum treatment to patients admitted to the hospital within seventy-two hours of the onset of their infection, as it was thought that if the serum had any value it would be most evident in the early cases; moreover, it would be possible to give thorough serum treatment and more careful study to the smaller series.



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The results of our 1930-1931 study, shown in table 9, are rather surprising. There were twenty control cases with thirteen deaths (65 per cent); and twenty-one cases treated with serum, with three deaths (14.3 per cent). Table 10 shows that the age and other complicating factors were slightly against the control cases, but not to such a degree as to be responsible for the marked difference in mortality rate. Furthermore, of all the patients who recovered, only two controls were septic, while six who were treated had pneumococci in the blood stream. These results are very encouraging but cannot be considered conclusive, because of the small number of cases in the series.

Table 9.—*Comparison of Mortality Rate in Cases Treated with Felton's Concentrated Serum and Control Cases Admitted Within Seventy-Two Hours of Onset 1930-1931*

	Number of Cases	Deaths	Mortality, per Cent
Control	20	13	65.0
Treated	21	3	14.3

COMMENT

The present investigation has served to demonstrate that type II pneumonia, as it occurs in Bellevue Hospital, is one of the most serious infections encountered in this climate. The incidence of type II is considerably less than that of type I pneumonia, but the mortality rate is so much higher that the actual number of deaths resulting from type II pneumonia is greater than that from type I. The two diseases run a somewhat similar clinical course. However, empyema is a more frequent complication in type I pneumonia, while bacteremia is much more common in type II infection. Bacteremia is probably an important factor in the high death rate in type II pneumonia.

The time has come when we must think of the various pneumococcus "types" as etiologic agents of independent diseases. Such an attitude is necessary before the specific treatment of pneumonia can be put on a rational basis; and, furthermore, this etiologic diagnosis is of definite aid to the physician in making a prognosis. Let us visualize two patients with pneumonia on the fifth day of the disease, each with two lobes involved, and with a temperature of 104 F. What a difference there is in prognosis, if one patient has a type I infection with a sterile blood culture, and the other, a type II, with bacteremia! The former patient will probably recover; the latter will almost certainly die.

Table 10.—*Analyses of 1930-1931 Series*

	Control	Treated
Average age	42 years	37 years
Number over 60 years	4	3
Bacteremia on admission	9	7
Complicating systemic disease	5	6
Chronic alcoholism	8	7

The rapid methods of typing described in this article are comparatively simple and make it possible for the physician to know the pneumococcus type on the same day that the diagnosis of pneumonia is made. About 55 or 60 per cent of cases will fall into either the type I or the type II group. Every patient [illegible] pneumonia should have serum treatment. In [illegible] we have presented evidence that [illegible] refined serum has some therapeutic value in the treatment of type II pneumonia. Certainly, it appears more promising than any other form of specific treatment available. The carbohydrate-splitting enzyme that Avery and Dubos[21] have isolated offers hope for the eventual control of type III pneumonia, but thus far no enzyme has been discovered which affects type II organisms. Pneumococcus vaccine is being advocated by some for the treatment of all types of pneumonia, but evidence has not been furnished to prove that it affects the course or mortality rate of lobar pneumonia. Reports[22] have appeared recently which show a marked reduction in mortality rate following the use of vaccine, but the cases were not sufficiently studied, either clinically or bacteriologically, nor was the series well enough controlled to make the conclusions justifiable.

In attempting to evaluate the statistical evidence in support of type II serum, it must be remembered that the product which was used in the first years of our investigation was not nearly as potent as that which is now available. During the season of 1930-1931, the death rate in a group of twenty-one serum treated cases (admitted to the hospital early) was only 14.3 per cent, compared with 65 per cent for twenty early controls. This series of cases is too small to carry much significance. If, however, such a marked difference in mortality rate is [illegible] through the next [illegible] three seasons, it [illegible] strong evidence in favor of serum treatment.

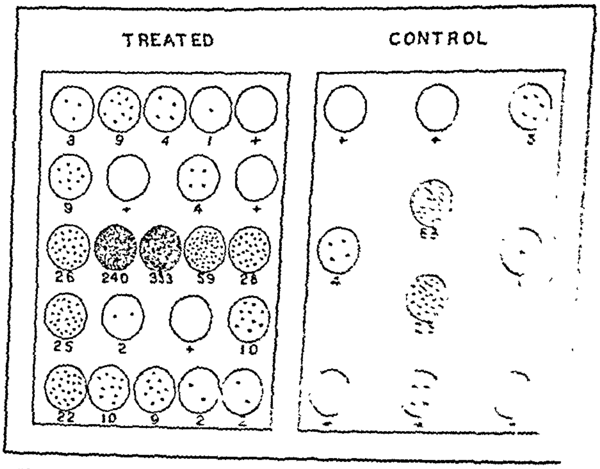

Chart 5.—Figures showing [illegible] recovered from type II [illegible] the treated, and the other, [illegible] culture plates, and the dots, [illegible] dots and with a plus (+) sign [illegible] was positive.

The effect of [illegible] on the clinical course of type II [illegible] as striking as that produced [illegible] The [illegible] in cases of [illegible] is rarely [illegible] patients, however, [illegible] a somewhat [illegible]

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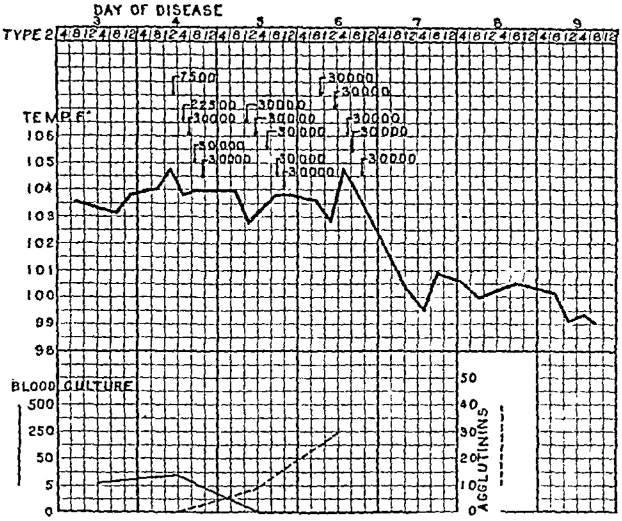

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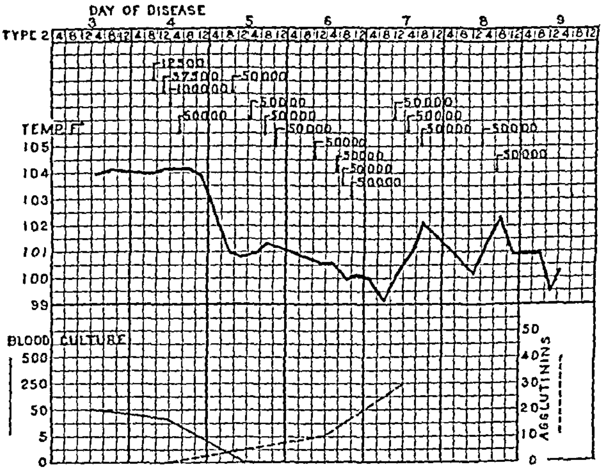

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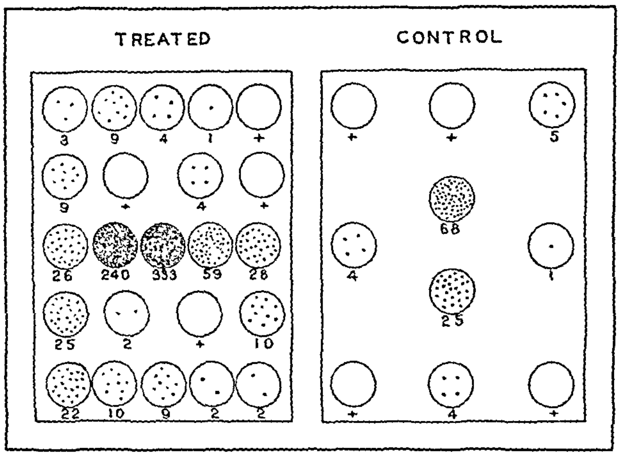

Chart 5.—Figures showing the results of blood culture in patients who recovered from type II pneumococcus bacteremia. One panel refers to the treated, and the other, to the control cases. The circles represent blood culture plates, and the dots, colonies of pneumococci. The circles without dots and with a plus (+) sign denote cultures in which the broth only was positive.

The effect of type II serum on the clinical course of type II pneumonia is certainly not as striking as that produced by refined serum in type I pneumonia. The sharp drop in temperature so often achieved in cases of type I infection treated early with serum is rarely obtained in type II cases. Serum-treated patients, however, appear less toxic and seem to run a somewhat milder course than the untreated.

Additional evidence in favor of type II serum lies in its effect on type II bacteremia. This is shown in a reduction of the mortality rate from 88 per cent in the septic cases without serum to 69 per cent in the septic cases with serum. An analysis of the recovered cases also shows a striking difference in the degree of bacteremia in the treated and untreated groups. This is clearly demonstrated in chart 5.

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[21] Avery, O. T., and Dubos, René: The Protective Action of a Specific Enzyme Against Type III Pneumococcus Infection in Mice, J. Exper. Med. 54: 73-89 (July) 1931.

[22] Sutton, D. C.; Kendall, A. I., and Rosenblum, Albert: Immunizing Value of "Natural Bacterial Antigens," Study No. 1—Pneumococci, Am. J. M. Sc. 182: 454-459 (Oct.) 1931.

It is too early to pass final judgment on the efficacy of type II serum. More investigation with a highly potent product is required before a fair verdict can be given. It is significant, nevertheless, that those who have worked extensively with type II serum are confident that it has a place in the treatment of type II pneumonia.

SUMMARY AND CONCLUSIONS

1. This report is based on a clinical and bacteriologic study of 1,000 cases of pneumococcus type II pneumonia from the wards of Bellevue Hospital.
2. The bacteriologic and clinical methods employed are described. During the last three years of the study, particular attention has been given to rapid methods of typing the sputum.
3. Pneumococcus type II pneumonia is considered from the standpoint of a specific disease entity. Like type I pneumonia, it runs a characteristic febrile course, usually terminating by crisis.
4. Twenty-three per cent of 4,310 cases of pneumococcus lobar pneumonia in adults were type II infections. Only 9 out of 329 cases of pneumonia in children were of type II origin.
5. Curves of the age distribution of type I and type II pneumonia show a higher incidence of type I up to the age of 30, and a slightly higher incidence of type II beyond that age. Curves of the seasonal distribution of the two types are almost identical.
6. The incidence of complications in the entire series as well as in the cases that came to autopsy is tabulated for both type I and type II pneumonia. Empyema occurs twice as frequently in type I, while endocarditis is found twice as often in type II. Meningitis has the same incidence in both types. Bacteremia is almost twice as prevalent in type II as in type I infections.
7. Type II pneumonia has a mortality rate of 48.8 per cent, almost twice that of the type I variety. The death rate in septic type II cases is extremely high, 87.5 per cent in the present series.
8. The experimental evidence in support of type II serum and its concentrate is presented. The immune serum contains antibodies which react against the type II organism, and it also regularly protects mice and other laboratory animals from type II infection. Felton's concentrated serum is shown to be from six to twenty times as high as unrefined serum in its content of antibodies and protective substance.
9. A definite clinical effect following the early administration of concentrated type II serum is often demonstrable. The course of the disease is usually milder and the blood more frequently remains sterile.
10. In a series of 252 cases of type II pneumonia treated with Felton's concentrated serum the mortality rate was 40.5 per cent as compared with a death rate of 45.8 per cent in 253 alternate controls. During the last year of our investigation, only early cases of type II pneumonia were included in the therapeutic study. Twenty-one treated cases had the benefit of intensive serotherapy with a death rate of only 14.3 per cent, against a rate of 65 per cent for twenty controls. The latter series, however, is too small to be convincing.
11. The results presented in this paper indicate that type II concentrated serum has definite though not striking clinical value. At the present time it is the most promising therapeutic agent available for the treatment of this disease.

THE MANAGEMENT OF BREAST CANCER *

ALBERT SOILAND, M.D., D.M.R.E. (Cambridge)
LOS ANGELES

There are two distinct surgical methods for carcinoma of the breast, one radical, the other conservative. The conservative operator advocates a simple removal of the offending neoplasm without any attempt to extirpate glands from the surrounding areas, while the radical performer encourages the obliteration of all questionable tissue, including muscles and fascia, and the cleaning out of all gland-bearing spaces contiguous to the cancer field.

Among radiation therapeutists there is a similar dual point of view. Many radiologists are inclined to the use of light exposures in order to obtain palliation without endangering normal structures around the field; others take the opposite point of view and maintain the necessity of destroying all cancer cells in the involved area as well as every aberrant cell contiguous to the affected field. As with surgery so also with radiology; the two groups can find ample grounds on which to found their separate claims.

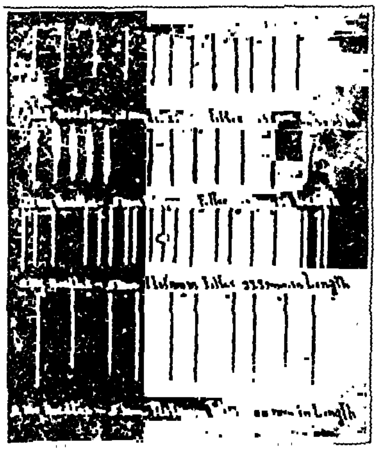

Fig. 1.—Types of radium filled platinum needles.

It was my privilege to present, at the London Congress in 1925, a paper on "The Treatment of Cancer of the Breast from the Viewpoint of a Radiologist," containing statistics of our own clinic, covering 550 patients observed over a sufficient length of time to warrant a report. In the intervening six years, many changes have occurred as related both to basic knowledge and to treatment methods. I have now modified and revised, to a considerable degree, my opinion of radium needles as then expressed.

My first success with radiation in a recurrent breast cancer was reported in 1901. Since then, upward of 3,000 patients with cancer of the breast have received treatment at our clinic. Obviously, it was impossible in earlier days to compile an accurate statistical study; therefore, only 550 patients were referred to in 1925.

Since then our recording and follow up methods have been greatly improved but, even yet, to obtain accurate and reliable cancer statistics is well nigh impossible. The ratio obtained in our 1925 report has not been materially increased in advanced cases; however, with the constantly increasing public knowledge regarding cancer, a greater number of patients are submitting to treatment at a sufficiently early stage to presage a definitely higher total of five-year clinical cures. Familiarity with the evolution of radiation standards will, no doubt, permit one to coincide with this conclusion.

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* From the Soiland Clinic.

* Read before the Cancer Symposium at the Third International Congress of Radiology, Paris, July 30, 1931.

A short time ago, the surgical world was keenly interested when one of Britain's outstanding medical men announced having discontinued operative work on cancer of the breast in favor of radiation treatment; the latter, he stated, was giving him better results than surgery. Radiation therapy, as referred to here, is the interstitial implantation of platinum covered radium element needles, a method of treatment which offers all the benefit of close radiation without the disagreeable ulcerative reaction which accompanied earlier attempts to treat cancer below the surface with radium needles of low filter type.

This, then, is the method of radium therapy that I wish to present as the most promising and effective means at the present time. I desire to substantiate the preliminary report as given by that distinguished surgeon Lord Berkeley Moynihan, covering the original work done by Keynes, Handley, Cheatle, Cade and others.

For two years our clinic has employed the type of needles advocated by the authorities mentioned, and I am happy to state that the effects already observed are encouraging.

IMPLANTATION TECHNIC

Being privileged to take advantage of the pioneer work of the authorities quoted, as well as the observations of many other cancer workers throughout the world, and combining this with our own researches and conclusions, we have an approximately standard technic, particularly as related to preoperative breast cases.

With these patients the entire tumor mass is surrounded by implanted platinum covered needles, each needle containing from 1 to 2 mg. of radium and each of such a length as to be most suitable for the particular neoplasm submitted for dissolution. Great care is essential in order that the entire morbid area may come under an equalized crossfire of radium activity. The crux of the problem is to insure uniform radiation throughout the entire field involved. The work is accomplished with extreme mechanical and mathematical precision, the size and extent of each area to be treated being well determined, in order to insure the correct number of needles as well as the exact amount of radium to be applied.

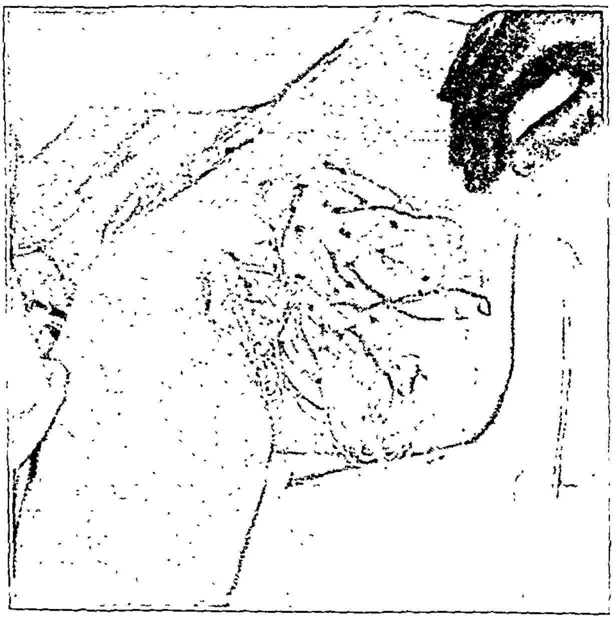

Fig. 2.—Needles containing radium implanted in breast, showing threads protruding.

With many cases one complete circle of implants is sufficient but others require a second ring of 3 cm. greater diameter and sometimes, with extensive involvements and large breasts, three encirclings are indicated.

In addition, all patients receiving interstitial radiation must have an implantation along the periphery of the breast, throughout the supraclavicular and infraclavicular spaces and the axillary area as well as the intercostal spaces and along the midaxillary line. These needles are left in situ for from seven to ten days, depending on the dosage prescribed. Usually from 75 to 80 mg. is required, although with some cases 100 mg. or even more may be necessary.

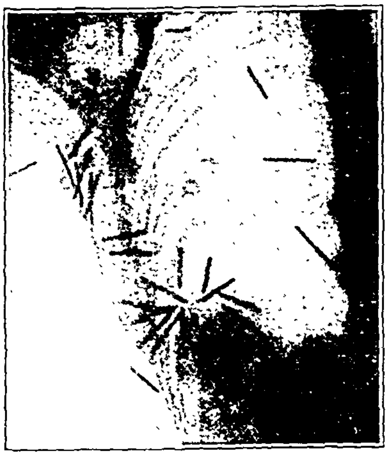

Fig. 3. — Arrangement and location of needles.

For this work, then, the use of fifty or more individual needles is entailed, all of which must be accurately placed and buried with consummate care in order that each and every individual cancer cell may be destroyed and that no outlying cell may remain beyond the reach of the radium barrage. Obviously, if one potential area of cancer-bearing tissue fails to be included, the effort will have been in vain.

The work is not easy. Experience shows that at least one hour is required to place and secure the needles properly in the average breast, and although this may be done under local anesthesia with certain patients, we favor a general anesthesia.

With nearly two years' work behind us, there is promise of much more positive results with implanted radium needles than we have heretofore attained through any other process of radiation therapy.

CLINICAL REACTIONS

Much care and patience must be exercised to see that embedded needles are at least 1 cm. distant from bone and periosteum. These tissues react negatively to prolonged irradiation, and, if already morbidly involved, should be destroyed by electrocoagulation or removed by the radio knife. Contrariwise, needles embedded in muscle, fascia, or lymphoid tissue may be permitted to remain throughout the full process of sterilization without any fear of lasting damage to contiguous normal structures.

As a usual thing, the average patient suffers but little inconvenience. Occasionally the axillary implantation has been found to cause some discomfort, particularly when much arm movement is indulged in.

It is essential also that patients be confined in bed during the required week or ten day period and it may be necessary with neurotic cases to offer a course of sedative remedies.

Usually there is but little radiation sickness, although it is well to alkalize the body and maintain a bland basic diet. Seldom is pain encountered, although an obstreperous patient may occasionally tax the clinician's patience and create difficulties which may require considerable finesse. As this is equally true in almost any therapeutic effort, it should not be considered as a deterrent for the treatment as advocated.

It is a simple matter to remove the needles, assuming that they have been properly secured to their protruding ligature with adhesive tape. Fortunately, the filtration rate of platinum prevents necrosis, and the little puncture wounds heal in a few days. The rapid melting away of malignant masses under this treatment is remarkable, and we have seen distended nodular breasts resume normal size and consistency with occasionally a return to lacteal function.

ECONOMICS

Let us now consider briefly the economic side of the problem.

Bearing in mind that the implantation of radium needles presents every aspect of a major surgical operation, the patient must be prepared with the care prescribed under the regulations of standard surgical technic and the radium embedded as required under the most rigid rules of aseptic surgery.

Appreciating the fact that the average neoplastic breast will have approximately $6,000 worth of radium tied up for a period of ten days, it is apparent that this type of treatment can be made available to only a limited number of sufferers. No individual radiologist could maintain sufficient radium needles to carry on a really extensive effort. It is extremely doubtful whether any hospital or institution is equipped, at the present time, to offer any broad service of this nature.

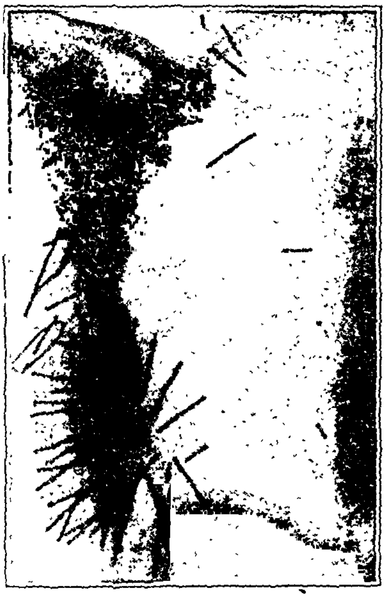

Fig. 4. — Arrangement and location of needles.

Therefore, until funds are available which will make possible an abundant investment in radium needles, this type of treatment presents itself as a serious economic problem. The present market quotation on radium shows no appreciable drop from the price which has been in effect for the past six or eight years; namely, $70 per milligram. To this must be added the cost of platinum and the highly skilled labor required for fabrication. These difficulties are worthy of serious thought when it is realized that no other method of applying radiant energy has secured results equal to those which have been attained through the direct action of embedded radium. Apparently, then, radium in the form mentioned must be obtained without regard to cost.

1407 South Hope Street.

TREATMENT OF ADDISON'S DISEASE WITH AN EXTRACT OF SUPRARENAL CORTEX (CORTIN) *

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Various kinds of organotherapy have been used in Addison's disease since the association of the suprarenals with that syndrome was pointed out by Addison in 1855. Kennicutt,[1] in 1897, reviewed the literature and reported that twenty-eight of forty-eight cases were improved by such therapy. In view of our present knowledge it is difficult to attribute the improvement in such a large proportion of cases to organotherapy. The remissions that may occur could account for the improvement in at least part of the cases. If improvement is very slow it may be independent of treatment. The best evidence of efficacy of organotherapy is the occurrence of relapse each time treatment is stopped.

Some success has been attributed to the use of whole suprarenal or of cortex by mouth together with epinephrine administered to the point of tolerance by rectum and subcutaneously.[2]

In October, 1927, Hartman, MacArthur and Hartman [3] described the first method for preparing an epinephrine-free, aqueous extract containing the vital hormone of the suprarenal cortex. The evidence that the hormone was present in this extract was the increased survival period of completely suprarenalectomized cats (twenty-one days as compared to six days for the controls). With such an extract it was possible to keep suprarenalectomized cats alive an average of twenty-eight days, as shown in a later report.[4]

Rogoff and Stewart [5] in October, 1927, reported increased survival of suprarenalectomized dogs treated with a saline extract of the suprarenal cortex. Their treated animals lived an average of 14.2 days, as compared to 9.6 days for the controls.[6] Since it was impossible to remove epinephrine by their method of extraction, the amount of hormone that could be injected was limited. The method of Hartman, MacArthur and Hartman permitted the injection of larger quantities of a more concentrated extract.

In March, 1930, Swingle and Pfiffner [7] reported results with a concentrated aqueous extract which kept suprarenalectomized cats alive indefinitely. In June,

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[*] Aided by grants from the National Research Council and the Ella Sachs Plotz Foundation.

[*] From the Laboratory of Physiology, University of Buffalo, and the Buffalo General Hospital.

[1] Kennicutt, F. P.: The Therapeutics of the Internal Secretions, Am. J. M. Sc. **114**: 1, 1897.

[2] Snell, A. M., and Rowntree, L. G.: Clinical Experience with Addison's Disease, Ann. Int. Med. **3**: 22 (July) 1929.

[3] Hartman, F. A.; MacArthur, C. G., and Hartman, W. E.: A Substance Which Prolongs the Life of Adrenalectomized Cats, Proc. Soc. Exper. Biol. & Med. **25**: 69 (Oct.) 1927.

[4] Hartman, F. A.; Brownell, K. A.; Hartman, W. E.; Dean, G. A., and MacArthur, C. G.: The Hormone of the Adrenal Cortex, Am. J. Physiol. **86**: 358 (Sept.) 1928.

[5] Rogoff, J. M., and Stewart, G. N.: The Influence of Adrenal Extracts on the Survival Period of Adrenalectomized Dogs, Science **66**: 327 (Oct. 7) 1927.

[6] Rogoff, J. M., and Stewart, G. N.: The Influence of Adrenal Extracts on the Survival Period of Adrenalectomized Dogs, Am. J. Physiol. **84**: 663 (April) 1928.

[7] Swingle, W. W., and Pfiffner, J. J.: An Aqueous Extract of the Suprarenal Cortex Which Maintains the Life of Bilaterally Adrenalectomized Cats, Science **71**: 321 (March 21) 1930.

1930, we[8] reported a rather simple method for producing a concentrated extract with low epinephrine content which would keep suprarenalectomized cats alive indefinitely and which would revive suprarenalectomized cats that were in the last stages of insufficiency. July 8, 1930, we treated our first case (case 1) of Addison's disease with this preparation.[9] Since then we have treated six other cases, which are included in this study.

USE OF THE ERGOMETER TO DETERMINE THE DEGREE OF ASTHENIA

Asthenia being the outstanding symptom in Addison's disease, an objective test for the determination of the fatigue point is highly desirable. Subjective estimates are unreliable. The ergometer, while it has its limitations, furnishes the most applicable objective test. It can be used at all times except when the patient is extremely weak. The fatigue point is far more important than the dynamic power of the muscle, since the latter does not respond readily to changes in the condition of the patient. The usual type of ergometer, which employs the middle finger, was used to determine the degree of asthenia at various times during observation and treatment. It seems most satisfactory to use a weight at first which, when lifted once every two seconds, causes fatigue in about three minutes. A sufficient number of tests is done to establish a base level, and then the patient is tested every week or so. It is not difficult to obtain base levels of work on the ergometer in asthenic patients while they are in the hospital.

In the severe cases, cortical insufficiency seems to be practically complete and cortin must be furnished in relatively large amounts indefinitely. In the less severe cases probably there is an appreciable amount of active cortex, but its functional capacity is considerably below bodily requirements. Intensive treatment for a limited period may bring about sufficient improvement so that the extract may be discontinued for a time. Certain symptoms suggest the presence of suprarenal insufficiency. In the absence of an unequivocal test, it is possible that the use of cortin, properly controlled, may be of diagnostic value.

In clinical cases, we have used extracts of the suprarenal cortex alone because we are not sure that the methods of separating cortin from the toxic substances of the medulla are entirely efficacious. We have used concentrations of cortin varying from the product of 15 to 50 Gm. of fresh cortex per cubic centimeter. In order to make our dosages comparable, we give them in terms of fresh cortex. The yield of cortin has been lower in the extracts made in larger quantities, because the suprarenals were at least a week old when received from the abattoir. There have been no toxic or disagreeable effects from the use of the extract except when a slight local reaction occurred in two instances. It can be given intravenously or subcutaneously. One patient was injected for nearly eight months, four times daily, without untoward results.

REPORT OF CASES

Case 1.—*History.*—A utility man, aged 24, was admitted to the Buffalo General Hospital, July 7, 1930. It appeared from his history that he considered himself well until April, 1930, when he had an attack of nausea and vomiting which lasted two days. He had another such attack in May. Since then he had become very weak and the vomiting had kept up. He had lost in weight from 170 to about 100 pounds (from 77 to 45 Kg.). On further questioning it was determined that he had experienced some fatigue at night after his day's work for about a year prior to the inception of his present illness, so that he did not care to leave his home at night. In 1928 he had scarlet fever and was ill about a month.

Physical Examination.—The patient seemed to be in extreme shock. His eyes were closed, he could not be aroused, and his legs seemed lifeless. His skin was diffusely tanned, especially over the face and arms, and there were many jet black freckles on his face, arms and chest. There was a small area of pigmentation on the mucous membrane of the gum over the upper left central incisor. His heart sounds were very distant. Systolic blood pressure was 50 and diastolic was 20. His legs twitched at times.

Laboratory Examination.—The urine was essentially normal. Chemical examination of the blood while the patient was fasting revealed sugar 82 mg. and urea 130 mg. per hundred cubic centimeters. The carbon dioxide capacity of the blood plasma was 27 mm. There were 21,600 leukocytes per cubic millimeter of blood, of which 76 per cent were polymorphonuclears.

Management and Course.—Artificial heat was supplied immediately. The patient was given repeatedly a 5 per cent solution of dextrose intravenously, and 1 cc. of 1:1,000 dilution of epinephrine chloride was administered subcutaneously every two hours. He did not appear to improve appreciably with this treatment. At the end of twenty-four hours he was given the extract of 3,000 Gm. of suprarenal cortex in fractional doses. The forcing of fluids was continued. His twitching gradually disappeared. His drowsiness continued, but he seemed less irritable and his mental response was better. After three more days of this treatment he began to eat and to read. July 16, another patient with Addison's disease was admitted, so that all the available cortin was divided between these two patients. July 19, the first patient began to lose interest in his surroundings, refused food, and vomited. He was then again given the extract of 3,000 Gm. of suprarenal cortex. July 20, he received the product of 4,800 Gm., and on the 21st, 2,400 Gm. He responded to treatment as before. Subsequently there were two other relapses due to reduction of the dose in order to determine his minimum requirement. With each relapse his blood urea value rose and the blood sugar dropped, but after improvement they returned to normal. Scaling of the skin, especially of the anterior abdominal wall, was found after each of the four relapses. His treatment was continued without interruption and by the end of seven months he was feeling much stronger. He could walk quite fast and could do eight times as much work on the ergometer as he could do originally. After he had been under treatment for 231 days, he developed a throat infection which was followed by bronchopneumonia. All the available cortin was given him. He died at the end of seven days.

Necropsy Report (by Dr. K. Terplan).[10]—The suprarenals showed extreme atrophy; each measured 4.5 by 1.4 cm.; the total weight of the two was 3.44 Gm.; they were ⅓ mm. in thickness. On the cut surface there were no normal markings. The parenchyma was grayish red. Histologic examination showed an absence of normal or regenerative cortical tissue except for one nodule, which was less than 1 mm. in diameter and which consisted of huge cortical cells containing lipoid but having degenerative changes in the cytoplasm. In the central portion of the suprarenals there were normally preserved medullary cells with chrome colored cytoplasm. In the outer portion there was in some places a complete absence of medullary substance. The cortex was largely made up of hyaline connective tissue.

Case 2.—*History.*—A housewife, aged 41, was admitted to the Buffalo General Hospital, July 16, 1930. In 1925, areas of vitiligo first appeared. A year later she had an attack of nausea and vomiting, pain in the upper right quadrant and diarrhea. This was diagnosed as acute cholecystitis. In 1927 weakness appeared, so that finally she was unable to do any of her housework. She was restless and did not sleep well.

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[8] Hartman, F. A., and Brownell, Katherine A.: The Hormone of the Adrenal Cortex, Proc. Soc. Exper. Biol. & Med. **27**: 938 (June) 1930.

[9] Hartman, F. A.; Aaron, A. H., and Culp, J. E.: The Use of Cortin in Addison's Disease, Endocrinology **14**: 438 (Nov.-Dec.) 1930.

[10] Terplan, K., and Sanes, S.: Pathological Report of a Case of Addison's Disease Treated with Cortin, Endocrinology **16**: 69 (Jan.-Feb.) 1932.

Her skin gradually darkened. Her family physician found her systolic blood pressure to be 72 and made a diagnosis of Addison's disease. She remained in bed for a whole year with no improvement. In 1929 she was ill with pleurisy for five weeks. During the six weeks prior to admission she had many attacks of nausea and vomiting and had to remain in bed all the time. Also, she had considerable pain in her legs and in her stomach.

Physical Examination.—The patient showed extreme prostration, was vomiting frequently, and complained of pain in the stomach. Her skin showed extreme vitiligo. There was one small area of pigmentation at the base of the tongue. The systolic blood pressure was 60 and the diastolic, 48.

Laboratory Examination.—Her blood count showed a moderate secondary anemia without leukocytosis. Blood dextrose was 116 mg. and urea 108 mg. per hundred cubic centimeters.

Management and Course.—On admission the extract of 100 Gm. of suprarenal cortex was given every four hours. She became gradually worse and died on the third day after admission. (From our experience with other cases we believe that this patient could have been saved, had a sufficient amount of cortin been available.)

Necropsy Report (by Dr. A. J. Foord).—There was an extreme atrophy of both suprarenal glands, so that they, together with the surrounding tissue, had to be fixed in solution of formaldehyde. Serial sections were made. The right gland was about 3 mm. in thickness and showed some hyperplasia of the cortical cells. The left gland was completely atrophied. There was healed tuberculosis in both pulmonary apices, recurrent cholecystitis, and marked lymphoid infiltration of and hyperplasia of the thyroid gland.

Case 3.—*History.*—A man, aged 38, a boilermaker, admitted to the Buffalo General Hospital, May 13, 1931, stated that he had been well up to June, 1930, when he had grip, which lasted two weeks, and that since that time he never regained his former strength. Six weeks later he had another similar attack. He worked until October 19, when he had to stop because of weakness which gradually increased and in December he was forced to go to bed. At that time he had nausea and vomiting. He remained in bed for three weeks, after which he began to get about. By April, 1931, he was able to walk from 600 to 800 yards. Pigmentation of his skin had been increasing since December, 1930. Many small jet black freckles had appeared on his arms, legs and face. He lost about 40 pounds (18 Kg.) from June, 1930, to the time he was admitted. He became irritable and had pains in his legs.

Physical Examination.—The patient was very poorly nourished and showed a diffused pigmentation of the skin of the entire body with darkening of the normally pigmented areas. There was pigmentation of the mucous membranes of the lips and of the inside of the cheeks. There were many jet black freckles. The rectal mucosa showed some pigmentation. The skin was generally very dry. His blood pressure was 80 systolic and 40 diastolic.

Laboratory Examination.—The urine showed albumin (from 1 plus to 2 plus) and the sediment usually contained many hyaline and granular casts. Red blood cells numbered 4,500,000; hemoglobin was 85 per cent; leukocytes were 14,000, 48 per cent of them being polymorphonuclears. A phenolsulphonphthalein kidney function test showed 16 per cent return of the dye in two hours; on subsequent examination, 29 per cent. Chemical examination of the blood with the patient fasting showed sugar, 67 mg., and urea, 33 mg. Gastric analysis showed the presence of free hydrochloric acid only after the administration of histamine. Basal metabolism was minus 17 per cent. The intradermal tuberculin test was positive. Roentgen examination of the suprarenal areas showed no evidence of calcification.

Management and Course.—On admission to the hospital the patient was very weak and had no appetite. While preliminary examinations were being made, he grew considerably worse, became very drowsy, vomited, and had incontinence of the bladder. During this time the urine showed an increasing amount of albumin and increasing numbers of casts. The blood urea increased to 90 mg. per hundred cubic centimeters. May 22, while the patient was in this state, the extract from 300 Gm. of suprarenal cortex daily was started in three divided doses. With this amount no improvement seemed evident, so that two days later the amount of cortin was doubled. He then became more alert, his appetite became better, and he took more interest in his surroundings. It was found necessary to increase the dosage of cortin up to the equivalent of 1,000 Gm. of suprarenal cortex a day. His appetite improved and he was able to be up and around the ward. However, he continued to lose weight. It was our belief that the dosage of cortin was inadequate, but more was not available. July 12, at 6 p. m., he complained of weakness which came on after a short walk in the ward. At 9 o'clock he was given orange juice and sugar. At 9:20 he stiffened out, all of his muscles went into spasm, and he became unconscious. His extremities were cold. His pulse was not obtainable and his heart sounds were inaudible. Respiration ceased for a time. He was given two intravenous injections of epinephrine chloride 1:1,000, 1 cc. each, and 60 cc. of a 50 per cent solution of dextrose intravenously. After this his pulse became palpable. At each prick of the needle his hands would go into clonic spasm and he would flex all four extremities. At 10 o'clock he was given the extract from 600 Gm. of suprarenal cortex subcutaneously and 1,500 cc. of a 5 per cent solution of dextrose in isotonic salt solution subcutaneously. At 11 o'clock he received 500 cc. of salt solution intravenously. At 11:30 the extract of 600 Gm. of suprarenal cortex was given subcutaneously. His general condition was now somewhat improved, although Cheyne-Stokes type of respiration was present. At 1:15 a. m. he received another subcutaneous injection of cortin consisting of 600 Gm. of suprarenal cortex, and 500 cc. of a 10 per cent solution of dextrose intravenously. His blood pressure was now 90 systolic and 50 diastolic. At 2:25 he received an intravenous injection of cortin, consisting of 600 Gm. of suprarenal cortex. At 3:15 the patient was resting quietly but became irritable and flexed his extremities when the sphygmomanometer cuff was blown up. At 4:35 there was considerable twitching of the muscles of the pectoral group and of the arm. At 6 o'clock he received another intravenous injection of cortin. Muscular twitchings and general irritability had now ceased. During the day he was given large quantities of a 5 per cent solution of dextrose subcutaneously. There was some twitching of the face and lips at times. He had periods when he appeared somewhat rational. July 14, he was becoming calm and he was drowsy a great deal of the time. The subcutaneous injections of cortin were continued. On the 15th, his appetite returned and he was irrational for only a short time. His blood urea dropped from 92 (July 11) to 47 mg. (July 17). From that time on he has shown gradual but definite improvement. His weight, which was 95 pounds (43 Kg.) on admission and 85 pounds (38.6 Kg.), July 6, reached 104 pounds (47 Kg.), October 12. He returned to his home the middle of October, where cortin was administered by a member of his family. When he came back to the hospital in ten days, as requested, it was found that he had gained 8 more pounds and felt very well. He was able to walk more than a mile at a time without fatigue, and his capacity on the ergometer was twice what it was at his first admission. His blood urea was 81 mg. per hundred cubic centimeters. There was the faintest trace of albumin in the urine and occasional granular and hyaline casts. The specific gravity of the urine was 1.018. His dose of cortin was the product of 1,200 Gm. of cortical tissue daily.

Case 4.—*History.*—An unmarried woman, aged 38, first seen by one of us, Sept. 26, 1931, had observed pigmentation on her gums four years before. Later, black freckles appeared on her arms, legs and face. There were also, as time went on, distinctly darker areas appearing on her body. Eight months before, she was admitted to the hospital with a diagnosis of "acute cholecystitis and hyposuprarenalinism." Since that time she had had periods when it has been necessary for her to remain in bed for a few days because of weakness. She usually had vomiting with these attacks. In the intervals she felt better and was able to be around but she never returned to her former health. She had had distress in the stomach for several years. She felt chilly in a room that was warm enough for others. Fainting spells had occurred frequently, especially in the past few months. She experienced some breathlessness on exertion.

Her weight was 116 pounds (52.6 Kg.), which represented a loss of 60 pounds (27 Kg.) in a year.

Physical Examination.—The patient was quite restless. There was some evidence of dehydration. There were areas of pigmentation on the arms, elbows and face. There were black freckles on the arms, legs and face. There was diffuse tenderness of the whole abdomen but no muscular spasm. The blood pressure ranged between 94 and 104, systolic, and 68 and 74, diastolic. The pulse rate was between 90 and 100.

Laboratory Examination.—As this patient was out of the city, it was impossible to get complete laboratory data. The blood sugar was 70 and the nonprotein nitrogen was 51 mg. per hundred cubic centimeters.

Management and Course.—The patient was given the extract of 200 Gm. of suprarenal cortex three times a day, beginning September 26, at 2 a. m. Soon after the first injection she went to sleep and slept continuously for six hours. She had had no sleep for the three preceding nights. She took some breakfast, and there was no vomiting for the first time in two weeks. She drank water and ate during the day without vomiting. Since that time her improvement has continued, and she has eaten well. Her weight, October 12, was 128 pounds (58 Kg.) and, October 20, her blood pressure was 110 systolic and 78 diastolic. She has been about the house, and her pigmentation has decreased so that her relatives say it is nearly normal.

Case 5.—*History.*—A housewife, aged 41, admitted to the Buffalo General Hospital, May 28, 1931, had been well up to September, 1930, except for occasional bilious and fainting attacks, which would appear if she injured herself. At that time she noticed weakness after exercise. This gradually became worse until March, 1931, when she became very weak. She had some twitchings of the legs so that she would have to get up and walk at night. She experienced tightness in the chest after walking a short distance. She had lost 30 pounds (13.6 Kg.) in the past two years. About March 1, it was noticed that her skin was becoming darker and about that time palpitation after exercise developed. She had considerable nausea and vomiting during April, 1931. She was restless and irritable and did not sleep well.

Physical Examination.—The patient weighed 96 pounds (43.5 Kg.). The skin was diffusely darkened. The nipples were very much pigmented. There were small areas of pigmentation in the mucous membrane of the mouth just inside the lip margins. The blood pressure was 90 systolic and 70 diastolic. The abdomen was normal.

Laboratory Examination.—The urine was normal. Red blood cells numbered 3,990,000; hemoglobin was 70 per cent; leukocytes numbered 5,600, 62 per cent of which were polymorphonuclears. Chemical examination of the blood, fasting, revealed sugar, 90 mg., and urea, 40 mg. per hundred cubic centimeters. Basal metabolism was minus 9 per cent.

Management and Course.—The patient received the extract from 600 Gm. of suprarenal cortex daily in three divided doses. In four days she felt stronger and could then do twice as much work on the ergometer as she could on admission. She slept much better and was not so "nervous" and irritable. The twitching in the legs and the tightness in her chest after exercise disappeared. After six days of treatment she could do four times as much work on the ergometer and was sleeping and eating normally. She left the hospital, June 16, continuing the extract of 400 Gm. of cortical substance daily.

July 9, she walked up two flights of stairs without difficulty for the first time since treatment had been instituted. The dose of cortical extract was then reduced to the product of 200 Gm. daily. At this time she returned home, 150 miles by train. There she began to feel much weaker, slept poorly, was irritable, and at times was despondent. The dosage of cortin was then doubled, and within forty-eight hours her condition was noticeably improved in that she slept better and acquired an improved sense of well being and was not so irritable. Her weight had now increased 7 pounds (3.2 Kg.). August 6, she did six times as much work with the ergometer as she did when first seen. Pigmentation was definitely diminished.

November 3, the patient wrote that she was able to carry out the ordinary activities of her daily life without difficulty.

Case 6.—*History.*—A woman, aged 55, a clerk, admitted to the Buffalo General Hospital, Nov. 19, 1930, had been unable to do her routine work without noticeable fatigue since 1924. She was drowsy and dizzy, and had had fainting spells for many years. In 1926 she observed the appearance of brownish areas on her face, neck and back. Her appetite had been fair and there had been no nausea or distress in her stomach. She had lost some weight.

Physical Examination.—The patient was somewhat undernourished and her skin was considerably darkened, especially in areas about the face, neck and back. Her voice was husky and she was easily fatigued. The blood pressure was 90 systolic and 60 diastolic. The examination of the abdomen was negative.

Laboratory Examination.—The urine was normal. Red blood cells numbered 3,110,000; hemoglobin was 60 per cent; white blood cells numbered 7,500, 54 per cent of which were polymorphonuclears. Chemical examination of the blood revealed sugar, 88 mg.; urea, 22 mg. The basal metabolism was about minus 28 per cent on three determinations. The oral temperature had a subnormal range. There was no free hydrochloric acid in the stomach contents until histamine was given.

Management and Course.—The diagnosis seemed uncertain. The patient had received thyroid medication in the past with questionable benefit. She had not been taking thyroid recently. She remained at rest in the hospital for nine days, during which time her ability to work without fatigue was established with the ergometer. Cortical extract, 300 Gm., subcutaneously, was then given twice daily during eight of eleven days. The length of time she could work on the ergometer without fatigue lengthened gradually, so that thirteen days after the discontinuance of cortin she could do twenty-eight times as much work as before treatment was begun. Her basal metabolism during this time remained unchanged. She had no cortin for fifty days, but her ability to work remained between two and three times what it was before treatment. Thyroid medication, 0.13 Gm. daily, was then administered until the basal metabolism reached normal. After she had been taking thyroid one month her ability to work without fatigue increased to eight times what it was originally. Cortical extract, 600 Gm., was now given daily for nine days in addition to the thyroid medication. Four days after cortin was stopped she could do thirty-eight times as much work with the ergometer as originally.

She has received no medication since Aug. 1, 1931, but has continued to feel well. She has gained 2 pounds (0.9 Kg.) and is able to do her work. Her pigmentation seems to be less. October 12, her basal metabolism was minus 23 per cent. Her chief complaint at that time was that she was exceedingly sensitive to cold.

Case 7.—*History.*—A woman, aged 41, a housewife, admitted to the Buffalo General Hospital, April 2, 1931, had noticed fatigue after a day of ordinary housework since the summer of 1930. This gradually increased so that before admission she found difficulty in carrying on her work. She had aches in the back and legs, especially when she walked up or down stairs. Very unpleasant nightmares had been present for the past two years. She was very easily irritated and disturbed. Her skin had become darker on her neck since 1921, and the pigmentation had spread to the chest and back. Her appetite had remained good and she had lost but little weight. She had no stomach trouble.

Physical Examination.—The patient was well nourished and did not appear especially ill. There was slight brownish pigmentation of the skin of the neck, chest and back, but none on the mucous membranes. Her blood pressure was 104 systolic and 80 diastolic. There was definite diminution in strength on squeezing the examiner's hands and extending the legs from a state of flexion against resistance.

Laboratory Examination.—The urine was normal. Red blood cells numbered 4,380,000; hemoglobin was 75 per cent; white blood cells numbered 9,900, of which 68 per cent were polymorphonuclears. Chemical examination of the blood showed dextrose, 84 mg.; urea, 24 mg. Basal metabolism was minus 12.7 per cent.

Management and Course.—Before treatment with cortin was begun the patient rested at home for fifteen days. There did not seem to be any improvement. The extract of 150 Gm. of suprarenal cortex was given twice daily. In three days she stated that she experienced less fatigue. At that time she could do 50 per cent more work with the ergometer than on admission. In six days she could climb stairs without fatigue, which she could not do previously. The pain in her back and legs and the nightmares disappeared. April 28, the work that she could do on the ergometer had increased 150 per cent. Cortical extract was then increased to double the original dose, now 600 Gm. daily. May 7, the daily dose was reduced to 300 Gm. May 29, it was discontinued altogether. She, however, continued to improve in every way. Two weeks after cortin was discontinued she was able to do ten times the work originally done with the ergometer. She felt better than she had in the past two years and was able to work about the farm and to drive her own car. When seen again, August 5, her symptoms were beginning to return—backache, irritability, weakness and aching in the legs. She had been through a severe emotional strain because of the death of a member of her family. August 20, she reported that she had been relieved of household duties and had remained in bed much of the time. We were not certain that there was not a psychic element in her case, so she was given two injections daily of isotonic salt solution. In eleven days she reported that her fatigue was somewhat better. September 1, she was given the extract of 75 Gm. of cortical substance twice daily. In three days, greater improvement was reported. She slept better and was not so irritable. The aching in the legs had subsided and fatigue on going up and down stairs had lessened decidedly. At that time she could do seven and one-half times as much work with the ergometer as when first seen.

COMMENT

Relapses; Recovery with Cortin.—The first symptoms that appear in a relapse are most likely to be anorexia, vomiting, epigastric discomfort and lethargy or irritability. There may be pains in the legs, back or abdomen. Insomnia and mental depression may follow. If the relapse is serious the blood pressure falls, the blood urea rises and the blood sugar may drop. Although the changes may seem to be coming on gradually, collapse and coma may occur in a few hours. Once there is evidence of an increasing cortical insufficiency, treatment should be instituted speedily. In order to be on the safe side, large amounts of cortin should be injected, because it often requires much more of this hormone to pull the patient through a relapse than it does to carry him at a level of comparative health, once that is attained. Two patients came out of coma and one recovered from collapse three times following the use of cortin.

As a patient becomes worse, his condition may change so rapidly that some of the stages may not appear or may be overlooked. During the process of recovery, these stages occur in the reverse order and develop more gradually, so that they may be more easily studied. Coma may alternate with periods of restlessness and irritability. During this stage there may be muscular twitching and irregular breathing. As consciousness returns, restlessness, twitching and irritability may increase and there may be vomiting. Pains in the abdomen, legs or back may appear; the patient is disoriented, may be mentally irritable and fails to cooperate. He passes through a period of depression and listlessness. His judgment is poor and insomnia may develop. As improvement progresses, the twitching disappears and restlessness is replaced by calm; the patient is less irritable, becomes free from pain and shows proper orientation. At first he may sleep a great deal. Within three days after treatment is instituted, he usually reaches the stage of recovery, which is characterized by mental alertness, a decrease of asthenia and a return of appetite. The patient soon recovers his sense of well being; good judgment returns and he is cooperative. His sleep becomes restful, so that he is awake about the same proportion of time as a normal individual. Cortical extract seems to be very beneficial in bringing restful sleep, especially in the milder cases. We group tentatively these changes into four phases—coma, irritability, calm and recovery. The time required to pass through these stages to recovery varies. It probably depends on the dosage of cortin and on the condition of the patient when the relapse occurs. It has been possible to bring about rapid recovery in suprarenalectomized cats that had been allowed to pass into the last stage of suprarenal insufficiency before death; one was prostrate, dyspneic and had marked muscular twitching in different parts of the body. The injection of cortin, intraperitoneally, caused the twitching and dyspnea to disappear within an hour. In seventy minutes she sat up and in an hour and forty minutes she was eating. Other cats that have passed more slowly into this stage of extreme suprarenal insufficiency have required a longer period, sometimes even days, for recovery. Also, some have required larger quantities of cortin to bring them out of coma. Occasionally, however, animals that have been allowed to pass into the last stages of prostration did not recover when treated with large amounts of potent extract. This leads us to believe that there are stages beyond which one dares not allow the patient to go without instituting treatment. The signs and symptoms in relapse and recovery are similar in animals and in man.

Gastro-Intestinal Symptoms.—Gastro-intestinal symptoms which were confined to capricious appetite or epigastric discomfort in the mild cases developed into marked anorexia with nausea and persistent vomiting in severe cases, particularly at the time of the crisis. Following the use of cortin, response to treatment was evidenced by a return of or an increase in appetite; and there was a prompt cessation of the nausea and vomiting, usually within twenty-four hours.

Asthenia and Blood Pressure.—In severe cases, although there may be prompt recovery to a certain level of fatigue resistance, it may be weeks before further increased fatigue resistance is shown either subjectively or with the ergometer.

In mild cases treatment has been followed by improvement in the ergometric test within a few days. Sometimes this is shown by the test before the patient realizes that he is definitely stronger. This is soon reflected, however, in his increased ability to carry on the affairs of daily life.

The improvement in strength is not accompanied by an appreciable change in the blood pressure. In the majority of these cases the systolic blood pressure does not elevate above from 100 to 110, and the only striking elevations in blood pressure were those shown following relapses, when a systolic pressure, which had fallen to 60 mm. or less, would return to the neighborhood of 100 mm. after several days. Case 3 is an exception, the systolic pressure not having risen much above 85 mm. The ergometric response was appreciable in all the cases and very marked in case 6.

Skin.—Pigmentation: There has been a decrease in the pigmentation in four of our cases after the use of cortin. In three this has been quite decided. On the other hand patient 1, who was kept alive with cortin for nearly eight months, was becoming darker during the last few months in spite of striking improvement in other ways. These changes have been determined by the use of a color dictionary.

Desquamation: After recovery from each relapse in our severe cases there has been desquamation over the body but especially on the anterior abdominal wall and the forehead. No effect on the hair was observed. It is interesting to note that suprarenalectomized cats may show skin changes. A freshly shaven area in a white cat shows a dirty gray and poorly nourished skin; the hair falls out easily or can be pulled out in masses. A normal cat, however, shows instead a pink healthy skin with tight hair. Sufficient cortin administered to suprarenalectomized animals brings back the normal qualities of the skin, and the hair again becomes fixed.

Temperature Regulation and Metabolism.—All of our cases have shown a subnormal temperature before and after treatment except for an occasional rise due to intravenous medication or to infection. During relapses, patients complain of cold extremities; this is probably due to faulty circulation as well as to lowered heat production. Individuals with suprarenal insufficiency are more susceptible to cold and therefore must be carefully protected even from moderate exposure. This inability to resist cold is due to lowered heat production. The basal metabolism of our patients has been below normal, though not strikingly so. Following suprarenalectomy, the metabolism of rats also falls (minus 10 to 20 per cent). On exposure to cold such animals may increase their heat production at first but the response soon falls far below that of normal animals.[11] As a result, the temperature falls and the animal dies if the exposure is prolonged. If they are injected with an adequate amount of cortin, the resistance to cold of suprarenalectomized animals is increased by enabling them to produce more heat; thus they stand exposure almost as well as normal animals. The metabolism of patients with suprarenal insufficiency has not been brought to normal by treatment possibly because the dosage was insufficient. Judging from the amount necessary to produce such a response in animals, it would be necessary to use from ten to thirty times as much cortin as we have used in the most serious cases of Addison's disease. However, there is some evidence that small animals require proportionately larger amounts of cortin.

Patients with marked suprarenal insufficiency have a lowered resistance to heat. Patient 1, when in excellent condition, was allowed to sit in the winter sunshine while he was tested with the ergometer. At the end of the test, which he had accomplished many times before without general fatigue, he felt so tired that he asked to lie down. Another case of Addison's disease not included in this report was found to show a low resistance to heat.

Weight.—All of our patients who have responded to treatment have shown a gain in weight. In the severe cases, this gain has been very much delayed. A gain in weight is undoubtedly a good prognostic sign and in the severe cases a failure to gain is an indication for increasing the dosage of cortin.

Laboratory Observations.—Cases of any severity commonly show an increase in blood urea, which usually varies in direct proportion to the patient's state. In a crisis the urea may rise, and in one of our cases it was well over 100 mg. per hundred cubic centimeters of blood. When sufficient amounts of cortin were given, the urea was reduced to normal in all cases save one. In some patients this response has been prompt, but in others it has been delayed and has not paralleled clinical improvement. When insufficient cortin was given, the normal blood urea was not reached. The severer cases showed lowered blood dextrose, which usually rose after the use of cortin. The severe cases showed a mild degree of secondary anemia, which improved under treatment. Abnormal urinary manifestations were recorded only during a relapse when there was a tendency for fairly large quantities of albumin and many casts to be present. No glycosuria was noted, despite the administration of considerable quantities of dextrose by various avenues during certain stages of treatment.

Dosage of Cortin.—The requirements of different patients for cortin vary over a wide range, depending no doubt on the degree of suprarenal insufficiency and also on individual variation. It has been found in animals with complete suprarenalectomy that the amount of cortin required to keep them in good condition varies considerably. This variation exists even under optimum conditions, but with infections, trauma and exercise much more cortin is needed.[12] When the requirements are not great, the doses not only are small but need not be given frequently. As the patient's demands for cortin increase, the dosages must be stepped up both in quantity and in frequency, as is necessary, for example, in infections or in trauma. This obtains in animals and seems to be true in man. The daily total requirements both in man and in animals seem to be less if the dosage is frequent. For instance, in case 1 the product of 1,200 Gm. of cortex distributed in four doses was more effective than that from 1,800 Gm. given in three doses. If our patients become worse we always increase the frequency of the dosage.

Rowntree, Greene, Swingle and Pfiffner[13] have used an extract of the suprarenal cortex. Judging from their reports, their results have been similar to our own. Ball and Lansbury[14] have reported another case treated with cortical extract. Simpson[15] has treated five cases. Patients not under our control have been treated by an extract prepared in our laboratory. Fuller Albright and P. C. Baird administered this extract in three cases of Addison's disease in the Massachusetts General Hospital and Allan T. Kenyon in one case of Addison's disease in the Billings Memorial Hospital at Chicago. Their results confirm our own.

CONCLUSIONS

Of seven cases treated with cortin, three represented severe stages of Addison's disease and four others presented less severe aspects of the syndrome.

Conclusive evidence has been furnished that an extract of the suprarenal cortex prepared by the ether-alcohol method is effective in alleviating the symptoms of Addison's disease.

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THE MIGRATION, FOR TREATMENT, OF PATIENTS WITH GONORRHEA OR SYPHILIS

COMPARISON WITH THAT OF PATIENTS WITH TUBERCULOSIS IN MASSACHUSETTS IN 1930 *

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Many opinions have been expressed, founded largely on impression, as to the extent to which patients leave their home towns for treatment of gonorrhea or syphilis, and as to why and to what extent they choose between physicians and clinics. The desire for secrecy, the scarcity of specialists in the smaller communities, the high cost of adequate treatment, the availability of clinics and other reasons are advanced in behalf of the various opinions. Actual data to support these impressions are lacking.

The Massachusetts Department of Public Health recently modified its system of reporting gonorrhea and syphilis. As one result of this change it has been possible to study some of these obscure matters and to arrive at some conclusions of qualitative, if not quantitative, value.

Unfortunately, since the new system went into effect on Jan. 1, 1930, only some 6,200 cases of gonorrhea and 3,500 cases of syphilis, reported by clinics and physicians in 1930, have been available for study. However, the analysis of even this relatively small number of cases has greatly strengthened some of our former impressions and has severely shaken others. At least there is now some groundwork for further investigation.

Preliminary study[1] indicated that the combined migration for the two diseases was more than a quarter of the total cases reported and varied inversely as the size of the community, from 70 per cent in the smaller towns to less than 5 per cent in the largest cities. This variation did not appear in the twenty-one cities and towns in the Boston Metropolitan Area, in which nearly three fourths of the patients migrated (except from Boston), regardless of the size of the community.

Table 1.—*Distribution of Population and Reported Case Rates in Massachusetts, 1930*

Size of Community	No. of Communities	Population*	Gonorrhea Cases	Gonorrhea Rate†	Syphilis Cases	Syphilis Rate†	Per Cent of Total: Population	Per Cent of Total: Gonorrhea	Per Cent of Total: Syphilis
Under 20,000	314	1,196,101	944	78.9	509	42.6	28.1	13.5	12.1
20,000-50,000	25	823,194	1,001	121.7	470	57.2	19.4	14.4	11.2
50,000-100,000	7	461,845	481	104.2	309	66.9	10.9	6.9	7.4
100,000-over	8‡	992,178	1,602	161.5	966	97.3	23.3	22.9	23.0
Boston	1	781,266	2,647	339.0	1,819	233.0	18.3	38.0	43.3
Not stated	...	....	299	.....	124	.....	....	4.3	3.0
State........	355	4,251,881	6,974	163.9	4,197	98.8	100.0	100.0	100.0

* Population as of July 1, 1930.
† Per 100,000 population. Includes patients in institutions.
‡ Lowell included: population, 99,733.

Further study has disclosed significant differences between the migration of patients with gonorrhea and of those with syphilis. Migration of the two sexes has been compared and also that in those communities which have or are near clinics with those which are far from clinics. The attraction which Boston has as a medical center is also studied, as it appears to have a large influence on the direction of the migration.

Those cases which were reported from penal institutions, mental disease hospitals, and the like, are not included in this study. Inmates of these institutions have no freedom of motion. A study of migration must take into account the opportunity which the patient may have for choosing between the various treatment resources.

GENERAL DATA

Table 1 presents certain pertinent information concerning the distribution of the population of Massachusetts and the reported rates for gonorrhea and syphilis. The increase in rates with the increase in the size of the community and the high rates and the percentage of the total cases in Boston should be noted.

There are approximately 5,800 physicians practicing in the state. Tables 2, 3 and 4 will orient the reader somewhat as to the distribution of these physicians, the extent to which they report cases and the availability of "specialists." The smaller the community, the greater is the percentage of physicians reporting gonorrhea, while the opposite is true of syphilis.

Table 2.—*Distribution of 5,829 Physicians: Reporting of Cases by Physicians*

Size of Community	Per Cent of Population	Per Cent of Physicians	Per Cent of Those in State Who Reported: Gonorrhea	Per Cent of Those in State Who Reported: Syphilis	Per Cent of Local Physicians Reporting: Gonorrhea	Per Cent of Local Physicians Reporting: Syphilis
Under 20,000*........	28.1	18.5	22.8	12.2	18.8	5.4
20,000-50,000..........	19.4	14.9	18.2	14.5	18.6	8.0
50,000-100,000.........	10.9	8.1	7.2	7.1	13.4	6.9
100,000-over..........	23.3	21.9	20.2	24.9	14.1	9.3
Boston..............	18.3	36.6	31.6	41.3	13.1	9.2
State............	100.0	100.0	100.0	100.0	15.2	8.1

* *Ninety-eight towns under 20,000 population do not, according to our records, have a resident physician.*

Data now being collected for future study seem to indicate that between 50 and 60 per cent of the physicians in the state treat gonorrhea and that between 40 and 50 per cent treat syphilis. By far the majority of these treat only as occasion demands, less than 2 per cent classifying themselves as "specialists." Apparently, then, less than a third of those treating gonorrhea and less than a fifth of those treating syphilis report their cases. It is known that not all their cases are reported even by those who do report. (Among 361 physicians who received arsenicals from the department in 1930, only 48 per cent reported cases of syphilis.)

There are twenty-nine public clinics in Massachusetts at which patients may be treated for either gonorrhea or syphilis. Eleven of these are located in Boston, four others in the Boston Metropolitan Health District;[2] and fourteen in twelve of the larger cities of the state. Not one of these cities is of less than 40,000 population (Brockton, Fall River, Fitchburg, Haverhill, Holyoke, Lawrence, Lowell, Lynn, New Bedford, Pittsfield, Springfield and Worcester). Large areas of the state are out of reach of clinics, but the total population of these areas is relatively small. These twenty-nine clinics are available to 2,152,000 people in the cities in which they are located comprising 50 per cent of the population of the state. An additional 1,046,000 people are residents of eighty-one other communities immediately adjacent to these clinic cities. Therefore, at least 75 per cent of the population of the state has clinic service almost directly at hand. The remainder, largely residents of small towns, have low reported rates of either disease, so that it is probable that more than 75 per cent of the infected population has clinic service available.

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* From the Massachusetts Department of Public Health.

[1] Nelson, N. A., and Scamman, C. L.: Gonorrhea and Syphilis in Massachusetts in 1930, New England J. Med. **204**: 637 (March 26) 1931.

[2] State Health District No. 2, consisting of Arlington, Belmont, Boston, Brookline, Cambridge, Chelsea, Dedham, Everett, Malden, Medford, Milton, Needham, Newton, Quincy, Revere, Somerville, Waltham, Watertown, Wellesley, Weston and Winthrop.

Table 3.—*Physicians in Boston and in the Health District of Metropolitan Boston* [2]

	Per Cent of Population of State	Per Cent of Physicians of State	Per Cent of Those Physicians Reporting: Gonorrhea	Per Cent of Those Physicians Reporting: Syphilis	Per Cent of Those Cases Reported by Physicians: Gonorrhea	Per Cent of Those Cases Reported by Physicians: Syphilis
Boston	18	37	32	41	30	30
Boston Health Area	39	52	50	55	51	51
Remainder of state	61	48	50	45	49	49

Examination of clinic records reveals that, with the exception of two or three of the smaller clinics, practically all clinic cases are reported. Consequently, in drawing conclusions it must be remembered that less than a third of the cases seen by physicians are reported, while most of the clinic cases are reported.

THE MIGRATION OF PATIENTS WITH GONORRHEA

Table 5 gives the percentage of migration from communities of different sizes, the percentage of cases reported by local physicians and clinics, and the total percentage of cases reported by physicians and by clinics, whether local or foreign.

It is surprising to discover that nearly 45 per cent of the reported cases are reported by local physicians, no matter how small or how large the community. This is interesting in view of the often repeated assertion that patients in small towns prefer the security of distant physicians' offices, away from the eyes of inquisitive neighbors, and that clinics in the larger cities are putting the physician "next door" out of business.

Table 4.—*Distribution of Reported Cases Among the Physicians Reporting*

(3,749 Cases of Gonorrhea Reported by 886 Physicians)

49.9% reported by 10% of physicians reporting (10 to 89 cases each)
70.3% reported by 25% of physicians reporting (5 to 89 cases each)
86.5% reported by 50% of physicians reporting (3 to 89 cases each)

(1,131 Cases of Syphilis Reported by 474 Physicians

37.1% reported by 10% of physicians reporting (5 to 38 cases each)
58.0% reported by 25% of physicians reporting (3 to 38 cases each)
78.9% reported by 50% of physicians reporting (2 to 38 cases each)

Even among the migrating patients, more went to physicians than to clinics from communities of all sizes.

It does appear, at first glance, that more patients are treated by clinics than by physicians as the size of the community (and, therefore, the availability of a clinic) increases. We are of the opinion that this choice of clinic in preference to physician is more apparent than real and offer first an hypothesis and then evidence which seems to support it. The smaller communities have no clinics and are often distant from clinics. There must be a point at which the cost of transportation to a clinic becomes equal to or passes the cost of treatment with a physician. Nor can patients who cannot afford a physician afford to travel to the nearest clinic. Consequently they go without medical care. As only those patients who can afford a physician get medical care, only cases seen by a physician are reported. If this is true, the reported rates of gonorrhea from those communities distant from clinics should be appreciably lower than the reported rates for communities of the same size which have, or are located nearer to, clinics. This we find to be, very strikingly, the case (table 6).

Further, clinics report most of their cases, but physicians do not. Therefore the distribution of cases between clinic and physician in clinic cities is, on the face of reports, disproportionate in the opposite direction. In the small communities, the proportion of clinic cases is low because the clinic type of case gets no treatment because travel costs as much as the physician he cannot afford; on the other hand, the proportion of clinic cases is high in clinic cities because clinics do, and physicians do not, report most of their cases.

Certainly, the more directly available a good clinic, the greater will be the temptation of those who are only in fair economic condition to go to the clinic. But this temptation is not as effective as the complaints of many physicians would make it appear. It seems, rather, that when clinics are not available the greater part of the "clinic" population goes without treatment.

Table 5.—*Migration of Patients with Gonorrhea (Per Cent of Total)*

Size of Community	Total Cases	Migrated to: M.D.	Migrated to: Clinic	Migrated to: Total	Treated Locally: M.D.	Treated Locally: Clinic	Treated Locally: Total	Total Reported by: M.D.	Total Reported by: Clinic
Under 20,000	884	38.7	17.2	55.9	44.1	0.0	44.1	82.8	17.2
20,000-50,000	949	25.0	21.8	46.8	47.4	5.8	53.2	72.4	27.6
50,000-100,000	456	27.6	18.4	47.0	37.1	16.9	53.0	64.7	35.3
100,000-over	1,510	12.2	9.6	21.8	48.1	30.1	78.2	60.3	39.7
Boston	2,482	2.6	0.0	2.6	42.7	54.7	97.4	45.3	54.7
State	6,281	15.0	9.4	24.6	44.5	30.9	75.4	59.7	40.3

Boston seems to enjoy a position by itself. Although the proportion of cases reported by Boston clinics is too high because of failure of physicians to report, the case rates are all out of proportion to those in other cities of more than 100,000 population. The fact that Boston also has a higher proportion of physicians and clinics than the other communities cannot be the reason, because that would effect only migration into Boston for treatment. There are highly competent physicians and excellent clinics in other cities with lower reported rates.

The attraction of Boston as a medical center is quite remarkable, as shown in the accompanying maps.

Table 6.—*Comparison of Communities with, or Near, Clinics with Those Distant from Clinics*

	Population	Reported Rate Gonorrhea	Per Cent Treated by: Physician	Per Cent Treated by: Clinic
Communities of from [illegible]				
	71,188	102.5	75.3	24.7
	188,591	97.0	74.3	25.7
Far from clinics	180,517	60.7*	99.2*	0.8*
[illegible]				
	139,046	136.7	69.5	30.5
	311,590	148.2	67.1	32.9
Far from clinic	148,957	52.3*	85.9*	14.1*
[illegible]				
	74,541	100.7	76.0	24.0
	311,590	148.3	67.1	32.9
	257,130	102.8	65.9	34.1
	217,492	182.6	60.1	39.9

* Note the low rates and the low clinic population.

Boston physicians see many more of these immigrating patients than do Boston clinics, for although reports indicate an equal distribution, it must be remembered that physicians report much less than half their cases (table 7).

Even clinic cities, of 50,000 and 100,000 population or more, in or close to the Boston Metropolitan Area feel this attraction, patients migrating from them to physicians and clinics in Boston (table 8). The double temptation of local and Boston clinics has not greatly increased the proportion of clinic cases over that in distant clinic cities or in nonclinic cities near Boston (table 6).

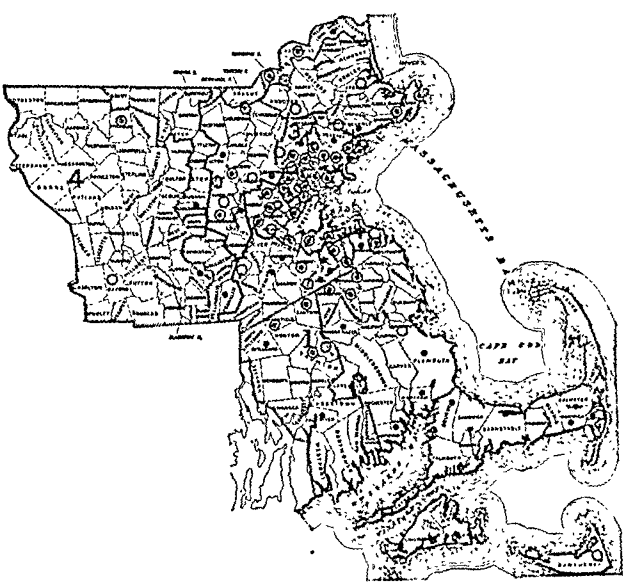

Fig. 1.—Migration of patients to Boston clinics in 1930. Circles indicate gonorrhea (467 cases from sixty-one communities); dots indicate syphilis (400 cases from seventy-six communities). One case of gonorrhea from the western part of the state is not shown.

The twenty communities in the Boston Health District provided 80.1 per cent of the patients with gonorrhea migrating to Boston clinics and 76.7 per cent of those migrating to Boston physicians.

Table 7.—*Migration to Boston Clinics and Physicians Compared with Remainder of State*

Reported by	Cases of Gonorrhea	Per Cent of Total Migration	Number of Communities
Boston clinics.................... ..	467	30.3	61
Boston physicians.........	459	29.8	65
Other clinics (14 cities)...........	122	7.9	57
Other physicians (95 cities).......	495	32.0	158

Very little difference is shown between the migration of male and female patients (23.9 per cent male and 26.9 per cent female), but 10 per cent more of the females than of the males were reported by clinics. Clinics do not provide more secrecy than the physician's office, so that some other reason must be found to explain this apparent greater "preference" for clinics. It may be partly economic, the incomes of working women probably being less than those of men; and it may be due partly to better diagnostic effort in the clinic than in the physician's office. Evidence in support of the latter factor is available:

The ratio of total male to female reported cases is 3.39 to 1. The ratio of male to female cases reported by clinics is 2.55 to 1. That for cases reported by physicians is 4.23 to 1. The common acceptance by physicians of a single negative smear as proof of freedom from infection accounts for much of their failure to make the diagnosis. Male gonorrhea is much more quickly suspected and diagnosed clinically.

THE MIGRATION OF PATIENTS WITH SYPHILIS

Table 9 (to be compared with table 5) offers striking evidence of the difference between gonorrhea and syphilis as medical and economic problems.

Strangely, the proportion of total migration for syphilis (24.9 per cent) is almost exactly the same as that for gonorrhea (24.6 per cent), but it is much higher for syphilis in the two groups of smaller communities. More patients migrate to clinics than to physicians; the proportion of cases reported by local physicians is half that for gonorrhea, and the total cases reported by clinics is more than twice that reported by physicians, local and foreign.

Table 8.—*Migration of Patients with Gonorrhea from Clinic Cities Near Boston* *

Migration to			Treated Locally by			Treated by	
M.D.	Clinic	Total	M.D.	Clinic	Total	M.D.	Clinic
31.9	22.8	54.7	30.8	14.5	45.3	62.7†	37.3†

* Quincy, Newton, Lynn, Cambridge: 532 cases.
† Note agreement with clinic or near clinic cities, table 6.

Probably no single factor nor easily evaluated combination of factors can account for this so different situation with syphilis. Among those to be considered are the following:

1. Fewer physicians treat syphilis than treat gonorrhea, and patients in the smaller communities must go to those cities where physicians who treat syphilis are to be found.

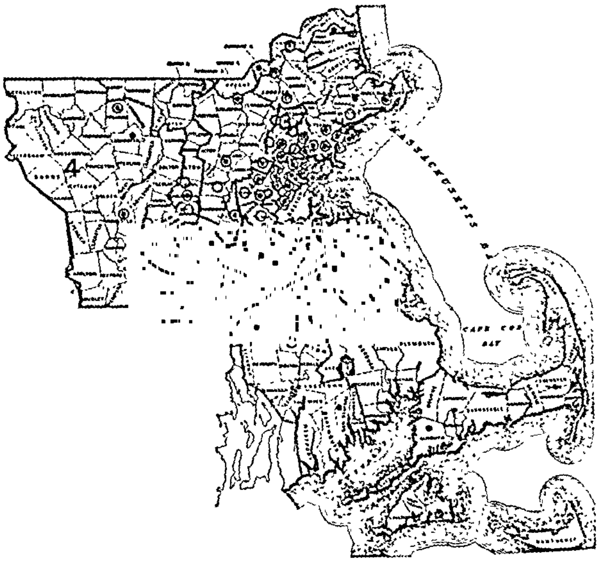

Fig. 2.—Migration of patients to Boston physicians in 1930. Circles indicate gonorrhea (459 cases from sixty-five communities); dots indicate syphilis (212 cases from sixty-four communities). Two cases of gonorrhea and three of syphilis from the western part of the state are not shown.

2. In the larger cities, where physicians who treat syphilis and where clinics are available, patients migrate less because they hesitate to add the cost of travel to the already high cost of treatment. Thus increased, unavoidable migration in the small community is balanced by decreased migration in the larger cities.

3. The cost of treating syphilis and the time required for cure is many times that for gonorrhea. Patients who could have afforded treatment by a physician for gonorrhea cannot afford it for syphilis and migrate to clinics, the cost of transportation being less than the physician's fees.

4. With syphilis, considered to be far more serious than gonorrhea, the patient is more anxious to have expert treatment. Physicians who specialize in the treatment of syphilis are rare outside the larger cities. When the patient has paid his fare to the distant city, he cannot so often afford a physician and goes to a clinic.

5. Syphilis is more likely to involve more members of a family than is gonorrhea and requires more expensive treatment for a longer time, so that the total cost of family medical care is very great. Also, since two thirds of the cases of syphilis that come to medical care are in the late stages, complications are frequent (neurosyphilis, cardiovascular disease, eye involvement, surgical complications). These require even greater specialization, which is proportionately more expensive. Consequently the patient turns to the clinic.

Certainly, however, as with gonorrhea, some of this "preference" for clinics is more apparent than real, for clinics report their cases and many physicians do not.

TABLE 9.—*Migration of Patients with Syphilis (Percentage of Total)*

Size of Community	Total Cases	Migrated to			Treated Locally by			Total Reported by	
		M.D.	Clinic	Total	M.D.	Clinic	Total	M.D.	Clinic
Under 20,000	416	29.6	52.9	82.5	17.5	0.0	17.5	47.1	52.9
20,000-50,000	392	23.5	41.3	64.8	24.7	10.5	35.2	48.2	51.8
50,000-100,000	265	18.5	25.3	43.8	18.9	37.3	56.2	37.3	62.7
100,000-over	836	7.1	13.1	20.2	29.1	50.7	79.8	36.2	53.8
Boston	1,662	0.5	0.0	0.5	20.2	79.3	99.5	20.7	79.3
State	3,571	9.3	15.6	24.9	22.4	52.7	75.1	31.7	68.3

Availability of a clinic has much the same effect on the reported rate of syphilis as it has on that for gonorrhea (table 10, to be compared with table 6). The figures being smaller, there is more statistical error in table 10 than in table 6. But the rates in communities distant from clinics is still so low as to be significant.

The attraction of Boston as a medical center is even more marked than it is for gonorrhea. Boston clinics report nearly twice as many out of town cases as Boston physicians do, but it must again be remembered that physicians often fail to report (table 11, to be compared with table 7).

Clinic cities in or close to the Boston area feel this attraction as they do in the case of gonorrhea (table 12, to be compared with table 8).

The twenty communities in the Boston Health District provided 73.8 per cent of the patients with syphilis migrating to Boston clinics and 65.1 per cent of those migrating to Boston physicians.

Less difference is noted between the migration of the sexes than was noted for gonorrhea (24.3 per cent of males and 25.9 per cent of females). Also, 2 per cent instead of 10 per cent more of the females than of the males were reported by clinics. That the failure of physicians to diagnose female gonorrhea accounts for the difference between the sexes in that disease seems more evident on examining the evidence for syphilis. The ratio of total male to female cases reported is 1.43 to 1. The ratio of male to female cases reported by clinics is 1.39 to 1. That for cases reported by physicians is 1.55 to 1. The Wassermann test is equally available for confirmation of diagnosis of syphilis in the two sexes. There is no sufficiently certain laboratory test for gonorrhea and that disease is much more frequently suspected and diagnosed on clinical observations in the male than in the female.

TABLE 10.—*Comparison of Communities with or Near Clinics with Those Distant from Clinics*

	Population	Reported Rate Syphilis	Per Cent Treated by Physician	Per Cent Treated by Clinic
Communities of from 10,000 to 20,000 population that [illegible]				
[illegible]	71,188	73.3	36.1	63.9
[illegible]	188,591	52.5	51.5	48.5
[illegible]	180,517	22.7*	63.4*	36.6*
Communities of from 20,000 to 50,000 population				
[illegible]	139,046	52.5	39.7	60.3
[illegible]	311,590	65.8	49.1	58.1
[illegible]	148,957	26.2*	74.3*	25.7*
Communities of all sizes in the Boston Health District (except Boston)				
Under 20,000	74,541	48.3	36.1	63.9
[illegible]	311,590	65.8	41.9	58.1
[illegible]	257,130	51.4	49.2	50.8
100,000 over	217,492	83.6	38.5	61.5

* Note the low rates and the low clinic population.

SUMMARY AND CONCLUSIONS

There are 5,800 physicians practicing among 4,250,000 people in 355 cities and towns in Massachusetts. More than half of these physicians are located in twenty-one communities in the Boston Metropolitan Health District, although only 39 per cent of the population lives there. From unpublished studies it appears that more than half the 5,800 physicians treat gonorrhea and nearly half of them treat syphilis, but only 15 per cent reported gonorrhea and 8 per cent reported syphilis in 1930. A higher proportion of physicians report gonorrhea from the smaller communities than from the larger, but the reverse is true of syphilis. Almost half the reported cases are distributed among 10 per cent of the physicians reporting, and apparently less than 2 per cent of the physicians in the state classify themselves as specialists in the management of these diseases. The twenty-nine clinics in the state are reasonably available to at least 75 per cent of the

TABLE 11.—*Migration to Boston Clinics and Physicians, Compared with Remainder of State**

Reported by	Cases of Syphilis	Per Cent of Total Migration	Number of Communities
[illegible]	400	44.9	76
[illegible]	212	23.8	64
[illegible]	158	17.8	67
Other physicians (47 cities)	121	13.6	75

* Clinic cities in or close to the Boston area feel this attraction as they do in the case of gonorrhea.

TABLE 12.—*Migration of Patients with Syphilis from Clinic Cities Near Boston**

Migration to			Treated Locally by			Treated by	
M.D.	Clinic	Total	M.D.	Clinic	Total	M.D.	Clinic
18.7	34.3	53.0	19.0	28.0	47.0	37.7†	62.3†

* Quincy, Newton, Lynn, Cambridge: 268 cases.
† Compare with table 10.

population and probably to an even greater proportion of the infected population. These clinics report most of the cases they see.

Nearly 45 per cent of the reported cases of gonorrhea and 22 per cent of the cases of syphilis were reported by "local" physicians, no matter how large or how small the community. The reported distribution of cases between physicians and clinics is more apparent than real: The small number of clinic cases in communities distant from clinics is accompanied by low reported case rates, while communities of the same size with or near clinics have high reported case rates. Since clinics report most of their cases and physicians do not, there is a disproportion in clinic cities, or those near clinics, between clinic cases and those reported by physicians.

Boston has a disproportionately high reported rate for both gonorrhea and syphilis. The attraction that Boston has as a medical center is striking, 60 per cent of the migrating patients with gonorrhea and 69 per cent of the migrating patients with syphilis having gone to that city for treatment, most of them, however, from cities in the Boston Health District.

There is little difference between male and female migration in either disease. Apparently a higher proportion of females with gonorrhea are reported from clinics, but there is evidence that this apparent difference is not real but due to failure of physicians to discover female gonorrhea. No such striking difference is noted between the sexes in syphilis.

It may be concluded that:

1. Migration for secrecy is not as great a factor as has been assumed, since an almost constant proportion of the cases are treated by local physicians in communities of all sizes. The lower percentage for syphilis may be explained on the basis of fewer specialists, greater cost of treatment, longer time required for cure, serious complications, and the general feeling that syphilis is more serious than gonorrhea.

2. Clinics apparently are not seriously taking cases away from physicians, for when there are no clinics available the reported rates of both gonorrhea and syphilis are only half as high as the rates in communities of the same size with, or near, clinics.

3. There is no real difference between migration of the two sexes or their choice between clinic and physician, the apparent difference in the case of gonorrhea being due to failure on the part of the physician to discover female gonorrhea.

4. A large medical center has a marked influence on migration of patients with either disease, but a greater one in the case of syphilis. This influence is effective in spite of local clinics and competent physicians or the size of the "home" community.

COMPARISON WITH THE MIGRATION OF PATIENTS WITH TUBERCULOSIS

Of all the common communicable diseases, tuberculosis is the only one, other than gonorrhea and syphilis, that frequently becomes a chronic economic and medical problem. The others, such as diphtheria, scarlet fever, measles and typhoid, are usually managed by the family physician; the cost of their care is relatively small and does not drain the family pocketbook over months or years. Specialized medical consultation is rarely required and there is no object in secrecy.

Tuberculosis, however, is chronic, often difficult to diagnose, requires expensive laboratory study, and is a serious economic problem to many people. The old public horror of the disease is not entirely dissipated, so that some patients still seek to keep their infections from being known.

Unfortunately, the reports for tuberculosis are so lacking in certain details that comparable analysis cannot be made of as many factors as was possible for gonorrhea and syphilis. For instance, it is impossible to determine which of the cases reported by municipal and county sanatoriums and other hospitals are clinic cases or institutional cases. In many instances it was impossible to determine whether a physician saw a patient in his private office or in the clinic of which he was a staff member. Thus 43.1 per cent of the 5,283 cases reported in 1930 could not be classified between clinic and physician or between voluntary migration to a clinic and final hospitalization.

Table 13.—*Migration of Patients with Tuberculosis (Percentage of Total)*

Size of Community	Migrated to			Reported Locally by			Reported by	
	M.D.	Clinic	Total	M.D.	Clinic	Total	M.D.	Clinic
Under 20,000......	23.2	16.6	39.8	58.1	2.1	60.2	81.3	18.7
20,000-50,000......	14.8	15.7	30.5	57.0	12.5	69.5	71.8	28.2
50,000-100,000......	11.8	16.3	28.1	55.6	16.3	71.9	67.4	32.6
100,000-over......	5.3	9.1	14.4	58.3	27.3	85.6	63.6	36.4
Boston...........	1.5	1.1	2.6	29.3	68.1	97.4	30.8	69.2
State...........	8.7	9.5	18.2	48.5	33.3	81.8	57.2	42.8

However, those reports which could be accepted as giving clear information indicate that there is much the same situation with tuberculosis as with gonorrhea and syphilis. Since most of the indefinite reports were from institutions that have associated diagnostic clinics, the figures for clinics in the following analysis are undoubtedly much too low.

There is no information available as to the proportion of physicians treating tuberculosis or specializing in its treatment. Nor have we felt that a study of the number of physicians reporting could be made without more effort than the accuracy of the results would warrant.

There is little difference between migration of the two sexes, but a higher proportion of the males than of the females appear to have been reported by clinics (45.7 per cent of males and 39.4 per cent of females).

In the state as a whole, 81.8 per cent of the patients were reported by local physicians and clinics as compared to 74.4 per cent of gonorrhea cases and 75.1 per cent of syphilis cases. Closer agreement, no doubt, would have resulted if the unidentified sanatorium clinic cases (mostly migrating cases) could have been included.

Clinics reported 42.8 per cent of the cases, as compared to 68.3 per cent for syphilis and 40.3 per cent for gonorrhea. For the reason just given, this figure is again probably too low.

The same apparent increase in clinic cases with increase in the size of the community is noted as in the other two diseases, but, owing to the impossibility of identifying many clinic cases, it is felt that nothing could be gained by comparing reported rates through the comparison of clinic cities with nonclinic cities distant from clinics.

Tuberculosis clinics are much more available than clinics for the treatment of gonorrhea or syphilis, there being fifty-eight municipal clinics in addition to the diagnostic clinics associated with the four state sanatoriums and others associated with the various county sanatoriums. Consequently, migration to another city to reach a clinic occurs less frequently.

Patients also are more likely to go to their family physician for a "cold in the chest" than for a suspicious infection of the genito-urinary tract, which may have some bearing on the high percentage of cases reported by local physicians (48.5 per cent, as compared to 44.5 per cent for gonorrhea and 22.4 per cent for syphilis).

Further, what becomes of the patient after a diagnosis is made is important. Probably the reporting physician turns many cases of tuberculosis over to an institution for treatment, whereas most physicians treat the gonorrhea and syphilis that they discover. Consequently, choice between a clinic and a physician for reason of cost of treatment may be necessary much less frequently in tuberculosis than in gonorrhea or syphilis.

Boston, as a medical center, has a similar attraction in tuberculosis to that in gonorrhea or syphilis, 51.3 per cent of the 546 migrating cases having been reported from that city. Boston clinics reported 75 per cent of these and Boston physicians 25 per cent (table 13, to be compared with tables 5 and 9).

IOPAX

AN ANALYSIS OF THE RESULTS OBTAINED IN FORTY-FIVE CASES, WITH REPORT OF A CASE SHOWING A SEVERE REACTION FOLLOWING INJECTION OF IOPAX *

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With the introduction of a satisfactory drug for intravenous pyelography, Swick and von Lichtenberg made a valuable addition to diagnostic methods. How useful this method will become, what its disadvantages and dangers may be, and to what extent it will replace some of the older methods will be determined only by a long experience with its use.

The basis for this report is an analysis of the results obtained with iopax (introduced as "Uroselectan") in forty-five cases in which forty-seven injections were done. In all our cases a sterile, freshly prepared 40 per cent solution of iopax was injected directly and slowly into the vein. The usual dose for adults was 40 Gm., although in a few cases in which there was poor renal function or in which this amount had not given the desired results, larger doses were used. In children smaller doses were used, usually about 25 Gm. Three roentgenograms of the urinary tract were then taken as a routine; the first, fifteen minutes after the injection of the drug; the second, forty-five minutes after the injection, and the third, one hour and fifteen minutes after the injection. In many cases in which these routine three exposures did not give the desired results, further roentgenograms were taken at intervals of one-half hour for several additional hours. In a large percentage of the cases, retrograde pyelography was also carried out.

The cases and results obtained with iopax are briefly summarized in the accompanying tables.

Table 1 deals with six cases of pyelitis. In half of these cases complete bilateral pyelograms were obtained with iopax, and in five of the cases diagnostic pyelograms were obtained. The first four cases represent typical instances of pyelitis of childhood, and in these patients uniformly good results were secured. This may be explained by the relatively larger doses used in children, as compared with the adult dose of 40 Gm.

The cases of renal tuberculosis are summarized in table 2. Our results in this type of renal lesion were disappointing, for in only one of the four cases were diagnostic pyelograms obtained, although in none of them was there sufficient renal destruction to account for this failure. In one of his addresses on the subject of intravenous pyelography, von Lichtenberg prophesied that, in the future, cystoscopy would rarely be used in the diagnosis of renal tuberculosis and that it would be necessary only to demonstrate the tubercle bacilli in the urine from the bladder, for injections of iopax would demonstrate the lesion in the kidney. Our meager experience does not bear out this hope, for not only did iopax fail to give the desired results in three of our four cases of renal tuberculosis, but in studying our other intravenous pyelograms we were struck with the frequency with which the minor calices were not properly visualized, and such visualization is necessary for the early pyelographic diagnosis of renal tuberculosis. Furthermore, cystoscopy is still our only reliable means of determining the function of the individual kidney, for this cannot be accurately gaged by iopax, since it not infrequently happens that a normal kidney shows a poor pyelogram with this method.

In table 3 we have grouped our cases of renal and ureteral calculi. There were four of these cases, and in three, excellent results were obtained with iopax. In all three cases, definite obstruction was present, a condition that has been recognized as an aid in obtaining satisfactory results with intravenous pyelography. In case 11 a large stone which obstructed the ureteropelvic junction prevented a retrograde pyelogram, and the marked degree of hydronephrosis was determined only by means of the iopax pyelograms.

Table 4 presents our cases of obstruction of the upper urinary tract. Usually the various forms of ureteral obstruction tend to improve intravenous pyelograms, but this did not appear to be so in our cases. Only in case 21 were the results satisfactory, and here the pyelograms of both kidneys were excellent and a marked kinking of the right ureter was beautifully demonstrated.

Seven cases presenting various types of obstruction of the vesical neck, including the so-called neurogenic bladder, are summarized in table 5. On the whole, our results in this group of cases were not satisfactory. Renal damage undoubtedly accounted for some of the failures, but in most of the cases the renal function tests did not demonstrate severe degrees of renal damage. Furthermore, in four of the injections, doses greater than the usual dose were used. In the two cases of congenital obstruction of the vesical neck (cases 27 and 28), the results obtained were disappointing. In one case a complete pyelogram was obtained on one side with a dose of 40 Gm.; in the other case (case 28) the results were completely unsatisfactory, although renal function tests and retrograde pyelograms demonstrated the absence of any marked renal damage.

In our small group of congenital anomalies of the kidneys (table 6), uniformly good results were seen,

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* From the Department of Surgery, the Lakeside Hospital.

and we found intravenous pyelography a definite aid in diagnosis. In two of the cases a double pelvis and ureter were suspected from the retrograde pyelograms of one of the pelves, but in neither case could the second ureter be catheterized.

In case 31 a very severe reaction followed the injection of the drug, and for this reason a more complete case report is given here:

A man, aged 55, was sent to the hospital by the industrial commission for complete urologic investigation. One year and four months before admission to the hospital, he fell from a height, striking and injuring the left lumbar region. Immediately following this injury he had hematuria for a short period and then was troubled with frequency of urination. One month after the accident, acute retention of urine developed, for which he was admitted to another hospital. A benign hypertrophy of the prostate was found, and this obstruction was later relieved by a suprapubic prostatectomy. Since this operation, the patient had been troubled with frequency, nocturia, and occasional questionable hematuria. In addition to this he had had constant indefinite pain in the back.

The patient was well nourished and healthy. The temperature, pulse and respirations were normal. The heart and lungs were normal. The blood pressure was 145 systolic and 110 diastolic. Abdominal examination did not reveal any abnormal conditions. Rectal examination gave negative results.

Laboratory examination revealed: red blood cells, 4,800,000; hemoglobin, 90 per cent; white blood cells, 6,400; blood Wassermann reaction, negative; blood urea, 35 mg. per hundred cubic centimeters; phenolsulphonphthalein, 40 per cent excreted in two hours and ten minutes. The Mosenthal test showed normal variation of specific gravity. The urine was hazy and acid; the tests for albumin and sugar were negative. Microscopic examination revealed a moderate number of white blood cells, but no red blood cells or casts.

On cystoscopic examination the bladder was found to be entirely normal except for a mild degree of generalized cystitis. The cystoscope was easily introduced into the bladder, and no obstruction was met in the urethra. The vesical neck did not show obstructive lesions of any sort. The right ureteral orifice appeared normal and was easily catheterized. Two ureteral orifices were seen on the left side, but only the anterior one could be catheterized. The bladder urine was found to contain a moderate number of white blood cells but no red blood cells. The urine from the right kidney was completely normal. The urine obtained from the upper left renal pelvis (lower ureteral orifice) showed an occasional white blood cell. A divided renal function test (1 cc. of phenolsulphonphthalein intravenously) showed a good function on both sides. Retrograde pyelograms were made, and these demonstrated a normal pelvis on the right and a small upper pelvis of a double kidney on the left side. Following this cystoscopic examination, the patient had no reaction, and the temperature and respirations remained normal. On the following day, at noon, 40 Gm. of iopax was injected directly into the vein as a freshly prepared 40 per cent sterile solution. The pyelograms that were obtained were satisfactory and definitely showed a double pelvis on the left side but no other pathologic condition.

A few hours after injection of the iopax, the patient's temperature suddenly rose to 40 C. (104 F.), the pulse rose to 112, respirations became rapid and labored, and the patient felt very sick. He appeared flushed, hot and acutely ill. The

Table 1.—*Pyelitis*

Case	Age	Sex*	Final Diagnosis	Renal Function: P.S.P. per Cent in 2 Hr., 10 Min.	Renal Function: Blood Urea, Mg. per 100 Cc.	Dosage, Gm.	Pyelograms†: Complete: Right	Pyelograms†: Complete: Left	Pyelograms†: Diagnostic: Right	Pyelograms†: Diagnostic: Left
1	9	♀	Acute pyelitis	75	23	25	Yes	Yes	Yes	Yes
2	9	♀	Acute pyelitis	70	15	30	No	No	Yes	Yes
3	6	♀	Acute pyelitis	80	..	25	Yes	Yes	Yes	Yes
4	6	♀	Bilateral pyelitis, chronic; chronic arthritis	80	20	25	Yes	Yes	Yes	Yes
5	16	♀	Pyelitis of pregnancy	60	20	40	No	No	Yes	Yes
6	45	♂	Bilateral pyelitis, chronic; cystitis	35	30	40	No	No	No	No

* In the tables ♂ indictes male; ♀, female.

† The four columns under the main heading of "Pyelograms" show the results obtained after the injection of iopax. The right and the left pyelograms are listed separately in order to record the kind of pyelogram obtained in the normal kidney in cases in which the lesion was unilateral. The results are tabulated as "negative" or "positive." A pyelogram was considered as "complete" only when both the pelvis and the minor calices were distinctly outlined. The outlining of the ureter was not considered, since a satisfactory ureterogram was obtained in only a few of our cases. A pyelogram was considered "diagnostic" when it gave sufficient information to be of diagnostic value in the specific case, even though the pyelogram was not perfect.

Table 2.—*Renal Tuberculosis*

Case	Age	Sex	Final Diagnosis	Renal Function: P.S.P. per Cent in 2 Hr., 10 Min.	Renal Function: Blood Urea, Mg. per 100 Cc.	Dosage, Gm.	Pyelograms: Complete: Right	Pyelograms: Complete: Left	Pyelograms: Diagnostic: Right	Pyelograms: Diagnostic: Left
7	62	♂	Pulmonary tuberculosis; renal tuberculosis	60	24	40	No	No	No	No
8	30	♂	Renal tuberculosis, left; perinephric abscess, left	70	35	40	No	No	No	No
9	56	♀	Renal tuberculosis, right	68	20	40	Yes	Yes	Yes	Yes
10	27	♂	Bilateral renal tuberculosis	35	40	40	No	No	No	No

Table 3.—*Renal and Ureteral Calculi*

Case	Age	Sex	Final Diagnosis	Renal Function: P.S.P. per Cent in 2 Hr., 10 Min.	Renal Function: Blood Urea, Mg. per 100 Cc.	Dosage, Gm.	Pyelograms: Complete: Right	Pyelograms: Complete: Left	Pyelograms: Diagnostic: Right	Pyelograms: Diagnostic: Left
11	20	♀	Nephrolithiasis, left; hydronephrosis, left	80	19.5	40	Yes	Yes	Yes	Yes
12	42	♂	Bilateral pyelonephritis; nephrolithiasis, left; ureteral calculi, left	70	25	40	Yes	Yes	Yes	Yes
13	54	♂	Ureteral calculus, right	65	31	40	Yes	Yes	Yes	Yes
14	26	♂	Ureteral calculus, right	65	30	50	No	No	No	No

leukocyte count increased to 14,800, but there was no change in the urinary observations. The throat showed a very mild degree of congestion. Examination of the chest, which had been normal previously, now showed numerous moist and crackling râles scattered throughout both lungs but most marked at the right base. There was no change, however, in the percussion note or voice sounds, and expansion was equal on the two sides. The heart was normal although rapid. The abdominal examination was negative, and there was no tenderness in either renal region.

The patient was extremely ill for about sixty hours; during this time the temperature remained high, and then it gradually began to come down, reaching normal on the fifth day, as shown in the accompanying chart. The pulmonary signs, which never became more marked than those described, gradually began to disappear after several days, and had entirely disappeared by the fifth day. The sputum during the acute course of the disease was thin and mucoid with occasional streaks of purulent material. Microscopically it showed numerous polymorphonuclear leukocytes but no erythrocytes.

Although this patient recovered completely from this reaction and apparently was not permanently injured by it, still, during the early course of the disease he appeared to be an extremely sick man and we were greatly alarmed about his condition.

Table 7 shows the results obtained in our two cases of renal tumor. In one case excellent results were obtained, whereas in the other case no pyelographic shadows whatever were seen in the roentgenograms.

Table 8 shows the good results that we obtained in our two cases of nephroptosis. The method seems desirable in this type of case, for, when the pyelograms are taken in the upright position, the ureter is not kept rigid by a catheter, thus allowing the ureteral kinks and the degree of ptosis to be clearly demonstrated.

In two cases of carcinoma of the bladder (table 9), we attempted to determine the condition of the upper urinary tract by means of intravenous pyelography. The pyelograms obtained showed a moderate degree of hydronephrosis. In one case, however, no pyelogram was obtained on the right side. Satisfactory cystograms were obtained in both cases.

Table 10 represents a group of miscellaneous cases in which varied results were obtained.

Case 41 is of especial interest. This patient sustained an injury to the left kidney, which resulted in marked hematuria. Two injections of iopax were done, the first on the day following the injury and the second, seventeen days later. Neither time could any shadow

TABLE 4.—*Obstructions of the Upper Urinary Tract*

				Renal Function			Pyelograms			
							Complete		Diagnostic	
Case	Age	Sex	Final Diagnosis	P.S.P. per Cent in 2 Hr., 10 Min.	Blood Urea, Mg. per 100 Cc.	Dosage, Gm.	Right	Left	Right	Left
15	21	♀	Stricture of ureter (contiguous retroperitoneal tuberculous glands); hydronephrosis, right	65	23	40	No	No	No	No
16	29	♀	Left ureteral obstruction due to uterine fibroid; pyelitis, left	50	16	40	No	No	No	No
17	64	♀	Kinked ureter, left; pyonephrosis, left; perinephric abscess, left	60	20	30*	No	No	No	No
18	45	♀	Stricture of ureter, left........................	80	25	40	No	No	No	No
19	34	♀	Occlusion of ureter, postoperative, right; hydronephrosis, right	50	30	40	No	No	No	No
20	33	♂	Stricture of ureter, right	60	19	40	No	No	No	No
21	23	♀	Kinked ureter, right; hydronephrosis, right..	80	15	40	Yes	Yes	Yes	Yes

* Unusually small adult weighing slightly more than 90 pounds (41 Kg.).

TABLE 5.—*Obstructions of the Lower Urinary Tract and Neurogenic Bladder*

				Renal Function			Pyelograms			
							Complete		Diagnostic	
Case	Age	Sex	Final Diagnosis	P.S.P. per Cent in 2 Hr., 10 Min.	Blood Urea, Mg. per 100 Cc.	Dosage, Gm.	Right	Left	Right	Left
22	55	♂	Benign hypertrophy of prostate...............	15	20	60	No	No	No	No
23	66	♂	Benign hypertrophy of prostate; bilateral hydronephrosis (moderate)	15	33	50	No	No	Yes	Yes
24	58	♀	Tabetic bladder; syphilis of central nervous system	85	36	40	No	No	No	No
25	31	♂	Neurogenic bladder; bilateral infected hydronephrosis and hydro-ureters; cystitis	10	40	40	No	No	No	No
						80	No	No	No	No
26	12	♂	Neurogenic bladder; spina bifida occulta......	40	27	30	No	Yes	Yes	Yes
27	11	♂	Fibrosis of vesical neck (congenital type) with chronic retention of urine	80	25	40	Yes	No	Yes	No
28	5	♂	Fibrosis of vesical neck (congenital type) with chronic retention of urine; bilateral infected hydronephrosis and hydro-ureters	35	40	25	No	No	No	No

TABLE 6.—*Congenital Anomalies of Kidneys*

				Renal Function			Pyelograms			
							Complete		Diagnostic	
Case	Age	Sex	Final Diagnosis	P.S.P. per Cent in 2 Hr., 10 Min.	Blood Urea, Mg. per 100 Cc.	Dosage, Gm.	Right	Left	Right	Left
29	19	♀	Double pelvis and ureter, left; cystitis; renal tuberculosis, left (?)	75	30	40	No	No	Yes	Yes*
30	24	♂	Double pelvis and ureter, right................	..	..	40	Yes	Yes	Yes	Yes
31	55	♂	Left double pelvis and ureters; left pyelitis..	40	35	40	Yes	Yes	Yes	Yes

* Diagnostic of double pelvis but did not show sufficient detail of calices to make possible a diagnosis of renal tuberculosis.

whatever be demonstrated in the region of the left renal pelvis. Retrograde pyelograms were made, which showed a double pelvis but no other abnormalities.

Case 45 was clinically a case of bilateral polycystic kidneys in which the kidneys were only moderately enlarged. Although no evidence of renal insufficiency had yet appeared, the intravenous injection of 40 Gm. of iopax did not produce any shadow whatever in either renal pelvis.

Table 7.—*Renal Tumors*

Case	Age	Sex	Final Diagnosis	Renal Function: P.S.P. per Cent in 2 Hr., 10 Min.	Renal Function: Blood Urea, Mg. per 100 Cc.	Dosage, Gm.	Pyelograms: Complete: Right	Pyelograms: Complete: Left	Pyelograms: Diagnostic: Right	Pyelograms: Diagnostic: Left
32	58	♂	Papillary carcinoma of kidney, right..........	62	25	40	Yes	Yes	Yes	Yes
33	71	♂	Tumor of kidney, right.......	33	33	40	No	No	No	No

Table 8.—*Nephroptosis*

Case	Age	Sex	Final Diagnosis	Renal Function: P.S.P. per Cent in 2 Hr., 10 Min.	Renal Function: Blood Urea, Mg. per 100 Cc.	Dosage, Gm.	Pyelograms: Complete: Right	Pyelograms: Complete: Left	Pyelograms: Diagnostic: Right	Pyelograms: Diagnostic: Left
34	23	♀	Nephroptosis, right	85	..	40	No	Yes	Yes	Yes
35	36	♀	Nephroptosis, bilateral	50	39	40	Yes	Yes	Yes	Yes

Table 9.—*Tumors of the Bladder*

Case	Age	Sex	Final Diagnosis	Renal Function: P.S.P. per Cent in 2 Hr., 10 Min.	Renal Function: Blood Urea, Mg. per 100 Cc.	Dosage, Gm.	Pyelograms: Complete: Right	Pyelograms: Complete: Left	Pyelograms: Diagnostic: Right	Pyelograms: Diagnostic: Left
36	67	♀	Papillary carcinoma of bladder.. ...	35	38	40	Yes	Yes	Yes	Yes
37	49	♀	Squamous cell carcinoma of bladder ...	75	23	40	No	Yes	No	Yes

Table 10.—*Miscellaneous Conditions*

Case	Age	Sex	Final Diagnosis	Renal Function: P.S.P. per Cent in 2 Hr., 10 Min.	Renal Function: Blood Urea, Mg. per 100 Cc.	Dosage, Gm.	Pyelograms: Complete: Right	Pyelograms: Complete: Left	Pyelograms: Diagnostic: Right	Pyelograms: Diagnostic: Left
38	11	♂	Hematuria (microscopic)	..	..	40	No	No	No	No
39	30	♀	Tuberculosis of retroperitoneal lymph glands with calcification	85	25	40	Yes	Yes	Yes	Yes
40	43	♂	Tuberculosis of hip; normal urinary tract....	45	18	40	Yes	Yes	Yes	Yes
41	39	♂	Laceration of left kidney; double pelvis, left..	70	32	40	Yes	No	Yes	No
			Second injection made eighteen days after injury	..	..	40	No	No	No	No
42	57	♂	Carcinoma of sigmoid involving bladder......	..	..	40	Yes	Yes	Yes	Yes
43	70	♂	Carcinoma of sigmoid involving bladder......	52	28	40	No	No	No	No
44	37	♀	Interstitial cystitis	50	21	40	No	Yes	No	Yes
45	45	♂	Polycystitic kidneys	55	34	40	No	No	No	No

While our series of forty-five cases is much too small to allow any final conclusions to be drawn, certain preliminary conclusions and indications for the use of iopax seem evident.

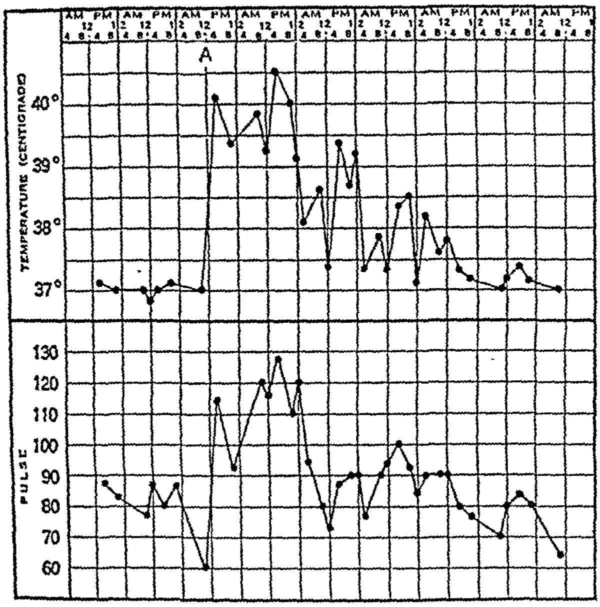
In certain types of cases the method has definite value. In pyelitis of childhood, for example, it gave such consistently good results that it probably should always be used before attempting cystoscopy. A common problem in children is the differentiation between a simple pyelitis and an infection of the urinary tract superimposed on some form of congenital obstruction. It is in these obstructive conditions that an early diagnosis is essential, for severe renal damage may occur while the child is being treated for a simple pyelitis. In the majority of these cases intravenous pyelography will probably give the necessary information (absence or presence of hydronephrosis) and thus obviate the necessity of a cystoscopic examination.

Good results were also obtained in cases of urinary lithiasis, congenital anomalies of the kidneys, and nephroptosis. Our results in the cases of obstruction of the upper urinary tract were not good, but it is likely that better results will be found in a larger group of these cases. Only two renal tumors occurred in our series, but excellent pyelograms were obtained in one case. Our number of vesical tumors is also too small to permit any conclusions, but the results were encouraging.

When the figures for the entire series of cases are examined, however, they are somewhat disappointing, for complete pyelograms were obtained in only about 40 per cent of the cases and diagnostic results in only 51 per cent. Doses of iopax reaching as high as from 60 to 80 Gm. have been recommended for routine use by some investigators, in order that satisfactory pyelograms may be more uniformly obtained. We have hesitated to follow this suggestion because of the frequency with which mild reactions were observed after the injection of only 40 Gm. of the drug. Mild reactions, such as nausea, vomiting, sensation of warmth, pallor, and pain in the arm, occurred in over 55 per cent of our cases. Furthermore, the case in which the severe reaction resulted (case 31) occurred fairly early in our series and made us timid about using larger doses.

An objection that may well be raised to the use of iopax is the expensiveness of the method, for not only are the necessary repeated roentgenograms costly but the drug itself is expensive. When the total cost of the method is compared with only a 50 per cent chance of obtaining any diagnostic information, one hesitates to use the method as a routine in all cases requiring urologic investigation.

Our present impressions concerning intravenous pyelography by means of iopax may be briefly stated as follows: Although the method is undoubtedly a valuable addition to our other methods of diagnosis, it cannot be expected to give consistently good results. In certain selected types of cases it should be used as a routine, whereas in other cases it should be used only when the older methods fail. It is very unlikely that it will ever replace cystoscopy and retrograde pyelography. Larger doses will no doubt tend to give better results, but until sufficient evidence has been collected to show that the drug is nontoxic, a conservative attitude should be maintained concerning this point.



Temperature (upper curve) and pulse (lower curve) in case 31: *A*, injection of iopax.

SUMMARY

An analysis was made of the results obtained with iopax in forty-five cases.

Diagnostic pyelograms were obtained in only 51 per cent of the cases, and completely satisfactory pyelograms in about 40 per cent of the cases.

The best results were obtained in pyelitis of childhood, urinary lithiasis, congenital anomalies of the kidneys, and nephroptosis. Iopax was not satisfactory in our cases of renal tuberculosis.

One of the main deficiencies of the method was that the minor calices were frequently not visualized at all or were incompletely visualized.

The drug may not be entirely nontoxic, as evidenced by frequent mild reactions and one severe reaction.

The method is expensive, and this becomes a valid objection to its routine use when one considers the frequency with which unsatisfactory results occur.

THE PATHOLOGIC BASIS OF SYMPTOMS IN NEPHRITIS *

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Any attempt at classification of nephritis should take into consideration the following facts: 1. The kidneys are very complex organs composed of about two million physiologic units, each of which is itself a complex structure. 2. The various parts of each physiologic unit are so interrelated and coordinated that serious changes in one part are followed by correlated changes in other parts of the unit. 3. The noxious agents which cause damage to the kidneys are probably multiple in kind, vary in degree of injuriousness, and may act either intermittently, remittently or continuously. 4. The number of types of relatively simple pathologic unit lesions that may be produced in the kidneys by these noxious agents is great. 5. The blood supply of the kidneys is very abundant, and primary changes limited entirely to the blood vessels may induce grave alterations in renal structure and function. 6. Nephritis is not a static condition, but both clinical and anatomic pictures change with the progress of the disease. 7. Effective elimination of waste products by the kidneys depends on a blood flow and blood pressure in the glomeruli adequate to maintain an effective filtration pressure within the glomerular capillaries. 8. The number of mathematically and biologically possible combinations of the foregoing variables makes any too detailed classification of nephritis an almost hopeless and probably a fruitless task.[1]

Two main types of nephritis can be readily differentiated: (1) that in which the secretory portion of the kidneys is primarily damaged and (2) that in which the primary lesion is in the smaller arteries and arterioles. For clinical and even for more scientific purposes such a simple classification meets the essential requirements. More elaborate classifications are likely to be confusing because they attempt to make separate types and clinical and pathologic entities out of (*a*) different stages of the same morbid process or (*b*) different combinations of the same fundamental unit pathologic lesions.

This simple but comprehensive classification is justified by two facts: 1. The basic pathologic changes are distinctly different in the two types. 2. These structural alterations have fundamentally different effects on renal function. Cases in the first group may be either acute, subacute or chronic, and have been variously termed parenchymatous nephritis, glomerulonephritis, and nephrosis. The basic pathologic process common to all these forms is degeneration with inflammation of varying degrees of intensity; the fundamental functional change is an increased permeability of the renal filter. The second group is essentially chronic and includes cases generally classed as chronic interstitial nephritis and primary, genuine or arteriolosclerotic contracted kidneys. The underlying pathologic process is a diffuse hyperplastic sclerosis of the smaller branches of the renal arteries, especially the afferent vessels to the glomeruli. The effect of this change is a reduction in blood flow and blood pressure, and therefore of effective filtration pressure, in the glomeruli, with resultant inadequate excretion of waste products.

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* From the Department of Pathology, Northwestern University Medical School.

[1] Simonds, J. P.: The Problem of Classification of Nephritis, J. A. M. A. **95**: 930 (Sept. 27) 1930.

In the first of the two aforementioned broad groups the secretory apparatus of the kidney is damaged. The kidneys themselves are swollen and larger than normal and, in the acute and subacute forms, the surface after the capsule has been stripped off is relatively smooth, the cortex is increased in thickness, and the normal cortical markings are indistinct and irregular. Microscopically, there are various types of alterations in glomeruli and retrogressive changes in the tubular epithelium.[1] As the disease progresses and becomes chronic, more and more physiologic units are destroyed and are replaced by fibrous tissue, the surface becomes pitted with small scars, and the cortex shows irregularities in thickness. The glomeruli suffer serious change, even in nephrosis, as shown by Bell.[2] The blood flow through the glomerular capillaries may or may not be interfered with as a result of thrombosis or of swelling or proliferation of the lining endothelium. When, as in lipoid nephrosis, the capillaries are only partially obstructed so that they continue to function, atrophy of the tubules does not occur. The most important functional alteration in this type is an increased permeability of the glomeruli due to alterations in the lining endothelium, damage to the basement membrane and retrogressive changes in the covering epithelium. This explains the absence of retention of waste products and the presence of albumin and even blood in the urine. In spite of the partial disturbance in glomerular blood flow, the increased permeability permits the adequate elimination of waste products. The available filtration pressure within the hyperpermeable glomeruli is adequate for proper functioning of the mechanism.

The increased permeability of the glomeruli in the first type of nephritis permits the escape of albumin in the urine. The lymph which escapes through the capillary walls of all organs contains albumin. There are only three locations in the body in which albumin does not normally escape through the capillary wall; namely, in the glomeruli of the kidneys, in the alveolar walls of the lungs and in the choroid plexus of the brain. In each of these locations the capillary endothelium is covered on its outer surface by a layer of closely adherent flat epithelium. In the glomeruli, at least, as shown by McGregor,[3] these are separated by a thin hyaline basement membrane. Epithelium is normally impermeable to colloidal solutions. It appears probable, therefore, that the presence of albuminuria in the first type of nephritis (which includes the so-called nephrosis and glomerulonephritis) is due to alterations in the basement membrane and retrogressive changes in the epithelium of the glomeruli rather than to changes in their endothelium.

The edema which is so characteristic of this type depends on (1) depletion of the serum albumin of the blood by its loss in the urine, and (2) the retention of crystalloids in the tissues. Barker and Kirk[4] have shown by a series of unique experiments on dogs and by quantitative studies of serum albumin of the blood of nephritic patients that the reduction of the serum albumin of the blood to 1 per cent or below is followed by the accumulation of fluid in the subcutaneous tissues; i. e., by edema. Fahr, Kerkhof and Conklin[5] found that the normal values for the osmotic pressure of the plasma proteins were from 20 to 23 mm. of mercury and that the osmotic pressure of the plasma proteins was 11 mm. of mercury, or lower in all their cases of nephropathic edema. The retention of crystalloids in the tissues is apparently not due to inability of the kidneys to excrete them but to some other mechanism possibly concerned with an effort to maintain the concentration of the proteins of the blood at their normal level. The accumulation of chlorides in the tissues increases the osmotic pressure of the tissue fluids, and this, in turn, leads to the withdrawal of water from the blood, causing concentration of serum albumin in the blood and increasing the fluid content of the tissues, inducing edema.

The presence of large amounts of albumin in the urine together with products of disintegration of the tubular epithelium, which is the seat of various retrogressive changes, furnishes material for the formation of the casts which are a characteristic observation in this type of nephritis. The presence of albumin is also a factor in the increased specific gravity of the urine in this disease.

All forms of this type of nephritis, whether they are called nephrosis, glomerulonephritis or parenchymatous nephritis, show the aforementioned characteristics (exudation, degeneration and increased glomerular permeability) in varying degree throughout the course of the disease. The progressive destruction of physiologic units in very chronic cases may finally result in such a reduction in available glomerular filtration surface that an increase in systemic blood pressure becomes necessary in order to supply a filtration pressure adequate to proper elimination of waste products. Thus, increased blood pressure, not a part of the disease per se, may appear late in the course of this type of nephritis, perhaps as a compensatory mechanism.

In the second or vascular type, conditions are quite different. The glomeruli are not primarily injured, and the filtration apparatus is not rendered more permeable. So far as the glomeruli are concerned, the function of filtering urine from the blood proceeds more or less normally until secondary changes occur in the glomeruli. The primary change in this type is in the smaller arteries and arterioles, especially in the afferent vessels to the glomeruli, and consists of a narrowing of their lumens, as a result either of arteriospasm or, more commonly, of a diffuse hyperplastic sclerosis. This change is quite different from the ordinary type of arteriosclerosis (atherosclerosis). The latter is nodular in distribution, involving only a sector of the circumference of the vascular lumen, and consists of a focus of connective tissue hyperplasia, with fatty degeneration and deposit of lipoids, in the intima. This change may materially interfere with the circulation in small arteries and, as a result of a terminal thrombosis, may entirely occlude the vessel, such as a branch of the coronary or the renal artery. Such a result is focal rather than diffuse. In the hyperplastic type, fibrosis without noticeable fatty degeneration occurs throughout the entire circumference of the intima. The lumen is gradually narrowed and is ultimately obliterated and replaced by a core of connective tissue. This change is not limited to the renal arterioles. In cases of this type of nephritis I have seen it in the smaller arteries and arterioles of the spleen, pancreas and liver, and in the suprarenals and surrounding fat. It has also been observed by Kernohan, Anderson and Keith[6] in the arterioles of skeletal muscles. This second type of

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[2] Bell, E. T.: Lipoid Nephrosis, Am. J. Path. **5**: 587 (Nov.) 1929.

[3] McGregor, Leone: The Finer Histology of the Normal Glomerulus, Am. J. Path. **5**: 545 (Nov.) 1929.

[4] Barker, M. H., and Kirk, E. J.: Experimental Edema (Nephrosis) in Dogs in Relation to Edema of Renal Origin in Patients, Arch. Int. Med. **45**: 319 (March) 1930.

[5] Fahr, G.; Kerkhof, A., and Conklin, C.: Osmotic Pressure of Plasma Proteins in Nephritis, Proc. Soc. Exper. Biol. & Med. **7**: 720 (April) 1931.

[6] Kernohan, J. W.; Anderson, E. W., and Keith, N. M.: The Arterioles in Cases of Hypertension, Arch. Int. Med. **44**: 395 (Sept.) 1929.

"nephritis" is, therefore, essentially a generalized disease of the arterioles of the body and is not primarily a disease of the kidneys. The occurrence of this change in the arterioles of the kidneys affects renal function and ultimately causes death from uremia if this termination does not occur earlier in the course of the disease from cerebral hemorrhage, decompensation of the hypertrophied heart, or intercurrent infection.

Arteriosclerotic contracted kidneys, unlike the arteriolosclerotic form, may show little or no functional disturbance in spite of the large areas of replacement fibrosis (scars). This is because the vascular changes are focal rather than diffuse. Between the scars enough renal tissue remains with sufficient blood supply for efficient functioning.

The secretion of urine depends on (1) the blood pressure and (2) the rate and volume of blood flow, in the glomerular capillaries. In order to maintain a pressure and blood flow adequate to the normal secretion of urine in the presence of this diffuse hyperplastic arteriolosclerosis, an increase of systemic blood pressure is necessary. This is characteristically the first symptom to manifest itself in this form of the disease. This increased systemic blood pressure at first compensates for the narrowing of the arterioles, and the normal glomeruli receive enough blood under sufficient pressure to excrete the normal waste products of the body. Later, glomeruli are progressively destroyed or rendered incapable of functioning as a result of either (1) the extension of the sclerosing process from the afferent arterioles into the glomerular capillaries or (2) complete occlusion of the afferent vessel by thrombosis or obliterating endarteritis.

The factor of safety of the kidneys is high; i. e., there is four or five times as much kidney substance as is actually necessary to perform adequately the function of these organs. Or, stated differently, three fourths of the total normal kidney substance may be removed without the animal showing any signs of renal insufficiency. Hence a very extensive destruction of glomeruli and their tubules may occur without evidence of renal insufficiency, provided an adequate blood pressure and blood flow are maintained in the remaining intact glomeruli. In this type of nephritis, retention of waste products is not due to primary deficiency in function of the glomeruli but to their failure to receive sufficient blood under adequate pressure to enable them to act as efficient filters. The increased systemic blood pressure is a compensatory mechanism which may, for a time, enable the kidneys to perform their function in a satisfactory manner but may at the same time endanger life by its effect on other organs, especially the brain.

Schapiro has shown, by injecting kidneys which were the seat of this type of disease, that only a part of the capillary loops were open in a glomerulus whose afferent vessel was markedly narrowed. This may be a further compensatory mechanism. If the narrowed artery cannot deliver enough blood to maintain the necessary blood pressure and blood flow in its whole glomerulus, it may be able to maintain these necessary conditions in a part of the glomerulus, so that this structure is not rendered entirely functionless.

The work of Richards[7] and his students has furnished more definite proof of an older view that the glomeruli are merely filters through which passes a fluid containing urea, chlorides and other waste products in the same concentration as that in which they are present in the blood and that the urine is concentrated in the tubules as a result of the action on the tubular epithelium by the absorption of water. In this vascular type of nephritis the kidneys are unable to concentrate the urine in the normal manner. The urine is increased in quantity and its specific gravity becomes "fixed" at a low level. The quantity of voided urine is not as great as the estimated amount (100 liters in twenty-four hours)[8] that passes through the glomeruli of normal kidneys, and it contains urea and other waste products in greater concentration than they are present in the blood but not in as great concentration as they occur in normal urine. Hence some ability to concentrate is still possessed by the kidneys in this type of nephritis.

How, then, are we to account for the increased quantity and lowered specific gravity of the urine in this disease? Two factors are probably concerned: (1) atrophy of the tubular epithelium, and (2) diminished blood flow through the plexus of capillaries which surround the tubules and receive their blood from the efferent vessels of the glomeruli. Attention has already been called to the interrelation of the different parts of the complex physiologic unit of the kidney; namely, the afferent vessel, the glomerulus, the capsule of Bowman and the long tortuous tubule to which it gives rise. In this type of nephritis the function of the glomeruli is interfered with, not by primary disease of their structure but as a result of changes in the vessels which supply them with blood. Destruction or partial or complete loss of function of a glomerulus from this cause is followed by atrophy of the tubule that receives its secretion, and atrophic epithelium cannot function normally.

Perhaps of greater importance is the inadequacy of the blood supply to the tubules. The efferent vessel leaves the glomerulus and breaks up into a plexus of capillaries which surrounds the first and functionally most important part of the renal tubule connected with that glomerulus. A glomerulus supplied by a sclerosed and stenosed arteriole receives a diminished quantity of blood, perhaps only enough to fill a part of its capillary loops, as shown by Schapiro. The amount of blood which reaches the peritubular plexus is therefore below normal. This diminished blood supply results in inadequate nutrition of the tubular epithelium which is concerned with the concentration of the urine. Insufficient nutrition leads to atrophy and to diminished function; i. e., incomplete concentration of the urine. Or if, as is held by some, the function of the tubules is not to concentrate urine but actually to excrete the crystalloids of the urine, the effect on renal function of insufficient nutrition due to these vascular changes would be the same in either case; namely, subnormal excretion and, therefore, retention of waste products.

Hence in a case of this vascular type of nephritis of moderate or great severity, two things occur: 1. The glomeruli do not filter out from the blood the total enormous amount of dilute solution of waste products furnished by the glomeruli of normal kidneys. This is due to reduced circulation of blood in the glomerular capillaries because of the narrowed lumens of the arterioles and afferent vessels. The amount of urine separated in the glomeruli, however, probably greatly exceeds the quantity passed from the bladder. Diminished glomerular filtration must be present to account for the accumulation of waste products in the blood. In diabetes insipidus, in which the filtration mechanism is quite efficient, there is no evidence of renal insufficiency in spite of the very high dilution of the urine. 2. As a result of atrophy of the tubular epithelium due to diminished gomerular function and to reduced blood supply to the tubule, the normal concentration of the urine filtered through the glomeruli does not take place.

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[7] Richards, A. N.: Kidney Function, Harvey Lectures, 1920, vol. 16.

[8] Cushny, A. R.: The Secretion of Urine, London, 1926.

In this form of nephritis, therefore, increased quantity of voided urine of low specific gravity actually means both decreased glomerular filtration and incomplete concentration in the tubules.

Fixation of specific gravity is a characteristic clinical manifestation of this type of nephritis. It is probably the result of four factors: 1. As a result of the vascular changes and the structural and functional alterations which they entail, the factor of safety of the kidneys is reduced to or below the critical point. 2. As a consequence, these organs are continually functioning at their maximum capacity. 3. They cannot respond to the normal diurnal changes in blood pressure and blood flow which are responsible for the differences in specific gravity of day and night urines of normal persons. 4. There is even the probability that the normal diurnal changes in blood pressure and rate and volume of blood flow through the kidneys may not occur in this type of nephritis because of the constant hypertension.

While most cases of nephritis fall readily into one or the other of these two groups, combined forms may occur. A clear understanding of the basic pathologic changes characteristic of each type and of their influence on renal function should aid in interpreting the clinical manifestations of these mixed forms.

In the treatment of these two types, quite different methods would appear to be rational. In the first type a high protein diet should aid in restoring the depleted serum albumin. Reduction of water intake and of salt in the diet should aid in relieving the edema. In the second type a high protein diet would add to the nitrogenous waste products which the kidneys are already unable adequately to excrete. Normal or abundant water intake might aid in flushing out the accumulated waste products.

SUMMARY

1. Two types of nephritis can be differentiated: (*a*) that in which the essential damage is to the secretory portion of the kidneys, and (*b*) that in which the smaller arteries and arterioles are characteristically involved. This second type is not so much a primary disease of the kidneys as a generalized disease of the arterioles of the body.

2. The basic changes in the first type are degenerative and exudative (inflammatory) resulting in increased permeability of the renal filter without retention of nitrogenous products but with loss of albumin in the urine, depletion of blood serum albumin, retention of crystalloids in the tissues and edema. In the second type the fundamental pathologic change is a hyperplastic sclerosis of the smaller renal arteries and arterioles with narrowing of their lumens, (*a*) reducing blood pressure and blood flow in the glomeruli below that required for adequate filtration and (*b*) interfering with the nutrition and therefore with the function, of the tubules, thus causing retention of nitrogenous waste products.

3. More elaborate classifications are confusing because they attempt to make separate entities and types out of (*a*) different stages of the same morbid process or (*b*) different combinations of the same fundamental unit pathologic lesions.

4. If due recognition is given to the fact that nephritis is a progressive disease, it is possible, by means of this simple classification, to make a reasonably satisfactory correlation between its clinical manifestations and their pathologic basis, and to elaborate the principles of rational treatment.

Clinical Notes, Suggestions and New Instruments

SUBACUTE BACTERIAL ENDOCARDITIS WITH LARGE BRAIN ABSCESS *

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AND JOSEPH WEINSTEIN, M.D., BROOKLYN

But few cases of definite subacute bacterial endocarditis associated with brain abscess have been reported. Zolotowa[1] recently described a case with purulent meningo-encephalitis. Kimmelsteil,[2] in an excellent article on the subject, reports several cases with brain abscesses of very minute or microscopic size. Nathan[3] reports a case with microscopic brain abscesses. Winkelman and Eckel[4] cite a case with multiple small brain abscesses. Nadler and Herndon[5] report a case with a pea-sized purulent area in the internal capsule. Gilmore[6] observed a case with two brain abscesses, each about one-half inch in diameter.[7] Dr. Emanuel Libman, who has seen probably more cases of subacute bacterial endocarditis than any one else in America, advises us that he has never observed a case with a brain abscess.[8]

Because of the rarity of the occurrence of brain abscess in subacute bacterial endocarditis, and because in most cases previously reported the brain abscesses have been small or microscopic, the following case of subacute bacterial endocarditis with large brain abscess is recorded:

History.—H. S., a schoolboy, aged 15, admitted to the Jewish Hospital of Brooklyn, Dec. 6, 1929, whose family history was entirely negative, had had an attack of poliomyelitis at the age of 9. At 13 he had had scarlet fever, following which he suffered from frequent attacks of sore throat, and was admitted to the St. Marks Hospital in New York, where a diagnosis of rheumatic endocarditis was made. He remained in that institution for one month and was then confined to bed at home for a period of eight months. Tonsillectomy was performed at the age of 14. He did not suffer at any time from precordial pain, dyspnea, palpitation on moderate exertion or edema.

Six weeks prior to admission he had begun to have sore throat, headache and an irregular fever, which reached as high as 103 F. Two weeks before admission, for a period of three days, he had complained of soreness of his finger tips. Five days prior to admission there had occurred a complete left sided paralysis, without loss of consciousness. On the day before admission he had passed deep red urine. He had lost 16 pounds (7.3 Kg.) in the six weeks of his illness.

Physical Examination.—The temperature was 104 F. and the pulse 130; respirations were 44. The blood pressure was 132 systolic and 0 diastolic. The patient was thin, pale and emaciated. He appeared acutely ill and lay in bed on his right side with his head turned to the right. Sordes was present on both lips. There were numerous nevi on his body. There were many petechiae in the conjunctivae and over the axillary folds, abdomen and chest; many of these petechiae had white centers. The movements of the eyeballs were normal. Examination of the ear was negative. The tongue was dry. The neck was rigid. Examination of the lung revealed nothing abnormal. The heart was slightly enlarged to the left. On percussion the aorta was not enlarged. There were marked pulsations in the peripheral arteries. The apex beat was diffuse and in the fourth interspace just outside the nipple line. There was a presystolic thrill at the apex. A double murmur was heard over the apex and also over the entire precordium. At the aortic area the second heart sound could not be heard, and the double murmur was especially loud here. The heart beat was regular in rate and force. The abdomen was flat. The spleen was hard, and its edge was felt one finger-breadth below the costal margin. There was tenderness in the left lower quadrant of the abdomen but no spasticity. The liver was not palpable. There was a lower left facial palsy. The tongue protruded to the left. There was difficulty in swallowing. There was a paralysis of the upper and lower extremities on the left side. The knee jerks were weakly present on the left and completely absent on the right side, where there existed a pes cavus due to the old poliomyelitis. There was no Babinski sign nor any of its modifications. Bed sores were developing on the sacrum, the left elbow and the left heel.

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* From the Meyer A. Rabinowitz Medical Service of the Jewish Hospital.

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[3] Nathan, Helmuth: Concerning Viridans Encephalitis, Ztschr. f. d. ges. Neurol. u. Psychiat. **126:** 536-544, 1930.

[4] Winkelman, N. W., and Eckel, J. L.: The Brain in Bacterial Endocarditis, Arch. Neurol. & Psychiat. **23:** 1161-1182 (June) 1930.

[5] Nadler, W. H., and Herndon, R. F.: Recurrent Streptococcus Viri [illegible] Unusual Meningeal Complication, Illinois M. J. **31:** [illegible] This case is also reported by Tice, Frederick: M. [illegible] and **5:** 987-988, 1916.

[6] Gilmore, J. W.: Acute Carditis and Subacute Bacterial Endocarditis, West Virginia M. J. **24:** 502-507 (Oct.) 1928.

[7] *Gilmore: Personal communication to the authors.*

[8] Libman, Emanuel: Personal communication to the authors.

The diagnosis was made of old rheumatic heart disease with mitral stenosis and regurgitation and aortic regurgitation, with subacute bacterial endocarditis engrafted on the old rheumatic endocarditis, and with embolization to the middle cerebral artery on the right side, to the meninges, and possibly also to the intestines. The possibility of a subarachnoid hemorrhage was likewise considered. A spinal tap was done and clear fluid obtained under moderately increased pressure. The fluid showed 30 cells per cubic millimeter, consisting of 10 red blood cells, 15 lymphocytes and 5 polymorphonuclear cells. The culture of the spinal fluid was sterile.

Eyeground examination revealed slight blurring of the margins of the right disk. There was a reddish patch below the disk margin, which was probably a hemorrhage. Slight arterial pulsations were present. No other hemorrhages or exudate in the fundi were seen.

An electrocardiogram showed a ventricular rate of 136 and regular sinus rhythm. P was upright in all leads, slightly slurred in lead I. T was upright in all leads. There was sinus tachycardia.

No histiocytes were found in the blood. The Wassermann and Kahn tests of the blood were negative. All the blood cultures, five in number, were sterile. The red cell count on admission was 4,000,000 with 48 per cent hemoglobin, and before the patient died it had fallen to 2,700,000 with 30 per cent hemoglobin. The white blood cells varied from 17,000 with 92 per cent polymorphonuclears to 30,000 with 89 per cent polymorphonuclears. The urine was normal on admission but later showed occasional red cells and a faint trace of albumin. Chemical examination of the blood gave normal figures.

The patient's temperature usually was between 102 and 104 F., showing usually a daily variation of from 2 to 3 degrees. During his course in the hospital he showed repeated crops of white centered petechiae in the conjunctivae and skin. He was treated with sodium cacodylate intravenously and with transfusions, but his condition showed no improvement and he died, Jan. 7, 1930.

Autopsy.—The brain weighed 1,275 Gm. It was extremely pale. There was a subpial hemorrhage 3 by 4 cm. in extent over the left frontoparietal region. The brain was hardened in solution of formaldehyde and later, on section, was found to contain an abscess with pus cells in the right frontoparietal region. There was a definitely organized membrane wall 3 cm. in diameter surrounding this abscess. Unfortunately, because of the action of the formaldehyde, no culture could be made from this pus. The lungs showed early terminal bronchopneumonia. The heart weighed 300 Gm. The pericardial surface was rough and had a thin fibrinous exudate. The atria appeared normal. On the anterior cusp of the mitral valve was a large pedunculated friable vegetation, mulberry shaped. On the posterior cusp, near the margin, was a verrucose, firm vegetation. On the same cusp on the auricular surface was also a similar vegetation. The whole valve was thicker than normal. The chordae tendineae were of normal thickness and not shortened. There was no stenosis of the orifice. The aortic valve presented some rolling in of the edges, which latter were moderately thickened. The tricuspid and pulmonic valves appeared normal. The endocardium showed no changes. The myocardium was of normal color, size and consistency. The foramen ovale was closed. The stomach and intestines showed nothing abnormal. The liver weighed 1,659 Gm. The capsule was smooth and glistening. The consistency was moderately firm. On section, it presented a yellow brown color and was somewhat congested. Microscopically it showed congestion and cloudy swelling. The gallbladder was normal. The spleen weighed 720 Gm. It was moderately firm in consistency. The capsule had lost its glistening appearance. On the surface were numerous small white plaques and one large reddish area. On section the tissue presented a varied appearance. It was for the most part of a light pink color with the malpighian corpuscles standing out rather prominently. Numerous gray strands ran through it. There was a triangular dark red infarcted area in which were seen numerous small white nodules (old infarcts). The pancreas and suprarenals were normal. The right kidney weighed 150 Gm., the left 117 Gm. Their capsules stripped with some difficulty, leaving a smooth surface. There were numerous small hemorrhages, varying in size. On section the markings were somewhat indistinct. The cortex was of normal thickness. In the left kidney was a white firm nodule just below the surface, probably an old infarct. Microscopically, focal glomerular nephritis and a large area of necrosis was observed. The ureters, bladder and prostate were normal. The bone marrow showed an erythrogenic hyperplasia.

The anatomic diagnosis was thrombo-ulcerative endocarditis, pericarditis, chronic interstitial myocarditis, bronchopneumonia, parenchymatous hepatitis, infarction of the spleen and kidney, focal glomerulonephritis, abscess of the brain, and erythrogenic hyperplasia of the bone marrow.

COMMENT

The case here described is one of subacute bacterial endocarditis with a brain abscess 3 cm. in diameter. It is impossible in the present state of knowledge to declare why in some few cases of subacute bacterial endocarditis a brain abscess has developed. There is the possibility that it may be due to an unrecognized mixed infection. Nathan[3] appears to believe that it may be due to a massive invasion of the bacteria. There is also the possibility that, owing to the relative paucity of phagocytes in the brain,[9] the viridans organisms are here able to infect bland emboli and form abscesses, whereas in the abdominal viscera, where phagocytes are more numerous, they cannot do this. All these are possibilities; but at present there is no evidence in favor of any one of them.

Although we have observed many cases of subacute bacterial endocarditis, we have in no other instance noted such high leukocytosis and polynucleosis. If, therefore, we were again to encounter a case of subacute bacterial endocarditis with suddenly occurring hemiplegia and very high leukocytosis and polynucleosis, and if there were no other suppurative lesion present, we should be very strongly suspicious of the existence of a complicating brain abscess.

651 St. Marks Avenue.

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[9] Gay, F. P., in Jordon, E. O., and Falk, I. S.: Newer Knowledge of Bacteriology and Immunology, Chicago, University of Chicago Press, 1928, pp. 885-886.

The Results of Scientific Investigations.—It has been stated, by some, that science is ruthless, cold and inhuman. Inasmuch as the aim of science is the search for truth, the prosecution of research cannot in its course pay much respect to conventionalities of thought or hold inviolate traditions of any kind. The results of scientific investigations may often oppose and offend current ideas and cherished opinions. Much the same can be said, however, of new methods of expression by great artists. The music of Bach was almost incomprehensible to his generation, and certainly Wagner at first was not accepted with enthusiasm.—Longcope, W. T.: Methods and Medicine, *Bull. Johns Hopkins Hosp.* **50**:4 (Jan.) 1932.

Special Article

CONTRACT PRACTICE*

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CHICAGO

Contract practice is not a new development in medical care; it began as an essential feature of many pioneering projects in mining, railroad construction and lumbering; it is now assuming new forms, becoming highly competitive, using unethical methods and involving a large number of physicians.

Ever since men achieved the first stages of civilization, there has been nothing they have refused to do to obtain health when they have been sick. They have been willing to be half drowned, to be buried alive in earth up to their chins, to be pierced with needles and branded with hot irons, to have leeches suck their blood and to swallow vile tasting concoctions—and to pay for all this—in the hope of attaining cure from disease and of regaining health.[1] Now it may be added that many are willing to bargain with the lowest bidder on a contract basis for incomplete and inadequate medical services, and that for only a part of the family, because some solicitor tells them they will receive the best medical care at a ridiculously small sum.

NUCLEUS IS PLANTED FOR CONTRACT PRACTICE

About the middle of the last century, two types of medical practice were developed which were destined to be the forerunners of a dangerous, complicated, commercial medical system. One of these types was the Mutual Benevolent Hospital Association, philanthropic in character, having liberal endowments, extensive hospital properties and hospital staffs of high grade reputable physicians, all organized and maintained for the membership only; the other type was the medical service developed by the railroad, mining and lumbering companies for their workmen employed in places in advance of or apart from communities with medical facilities. The Mutual Benevolent Hospital Associations were organized to provide for their memberships the best obtainable medical services at the most reasonable cost. The mining, railroad and lumbering companies were moved by two factors to provide medical care for their employees: first, because necessary medical services could not be secured otherwise, and, second, to avoid or to minimize the liability that might arise from neglect of medical care and to reduce the loss to the companies in working hours thus affecting production, because of accidents or illness.

The precedent of such plans, developed by the exigency of the situation, the enactment of state workmen's compensation laws and the popular lay revolt against the costs of medical care, are now used as ample justification for the present systems of contract practice. All the contract plans now operating are essentially forms of sickness insurance. A study now being made by the American Dental Association, from which I shall quote briefly, shows how clear is the trend in the field of contract practice toward sickness insurance:

> Workmen's compensation legislation has been an almost invariable forerunner of general sickness insurance. In 1910 no state had such legislation. Today all but four have more or less elaborate systems of protection in this field. There is no agitation for their repeal, and little opposition to their continual extension.
>
> That extension has already made "occupational disease" compensable in several states and more are added annually.[2] The tendency is clearly described in a recent report of the Industrial Commission of South Dakota: "The original idea of the workmen's compensation law was that of helping the injured worker to bridge over his troubles until he was again able to resume his ordinary labor. But by actions of legislatures, courts and commisions it is beginning to approach that of a general plan of health and accident insurance." [3]
>
> About 17,000,000 workers are paid more than $150,000,000 annually under these laws at present, an amount *fully* comparable to that expended by many European countries on complete systems of compulsory health insurance. Dentists have been brought under this law in many places and in various capacities.
>
> *This legislation gains greatly in significance* when it is considered as the foundation and framework of future and vastly more extensive systems of insurance, for it now contains nearly all the features of the more extensive European systems to which physicians and dentists most strenuously object. There is little "free choice of practitioner," professional confidence is not respected, there is a mass of lay interference, the tendency to reduce fees to a minimum is already apparent, and charges of undue influence on professional testimony by employers or insurance companies on one side and by malingering employees upon the other are already common.

TYPES OF CONTRACT PRACTICE

The types of contract practice vary according to the organization providing the medical service and the form of contract used. There exist definite conditions under which contract practice is both legitimate and ethical, but these instances cannot be used in defense of unethical, highly competitive and economically unsound methods used by unscrupulous individuals or groups to further commercial or professional avarice.

The type of contract and the services rendered will therefore depend much on the integrity of those who devise and operate the system and are influenced by both the exigencies that call the system into operation and the motives that underlie its operation.

Contract coverage may be one of three types: (*a*) for employment connected injuries; (*b*) for employment connected illness and injuries; (*c*) for injuries and illness which are either employment connected or which may have no relation to employment.

The types of organizations or groups engaged in contract practice are as follows. It is not possible at this time to enumerate all the companies, associations, groups and individuals that would fall in each classification.

A. Large corporations:
    1. Railroads.
    2. Mining companies.
    3. Oil companies.
    4. Logging and lumber companies.
    5. Canneries.
    6. Shipbuilding and allied shipping companies.
    7. Other manufacturing companies.
B. Mutual benefit associations.
C. Hospital associations.
D. Medical groups.
E. Individual physicians.
F. County medical societies.
G. Hospitals.
H. Newspapers.
I. Cooperative groups.

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* Read before the Annual Congress on Medical Education, Medical Licensure and Hospitals, Chicago, Feb. 16, 1932.

[1] Holmes, O. W.: Medical Essays.

[2] Stewart, Ethelbert: Occupational Diseases and Workmen's Compensation, Monthly Labor Review, February, 1930, p. 93.

[3] Bulletin Association of Casualty and Surety Executives, October, 1930, pp. 9-10.

J. Industrial associations:
  1. Mutual benefit associations.
  2. Trade unions.
K. Lodges.

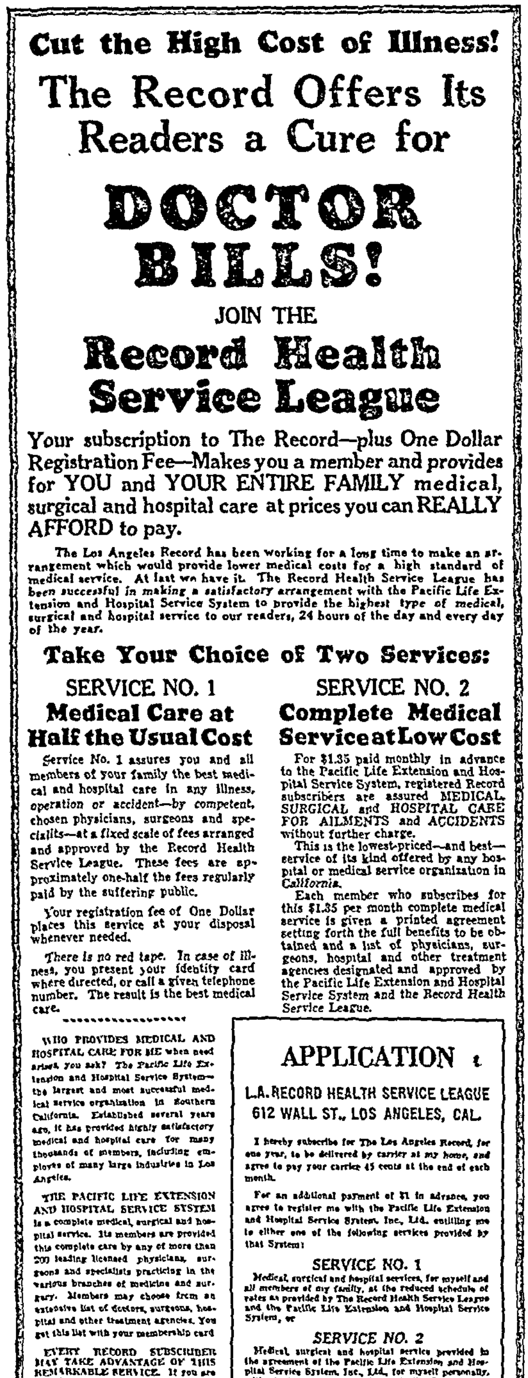
Many large corporations own and operate their own hospitals. Physicians are employed by contract and the employees are cared for on a monthly payroll deduction basis. Some mutual benefit associations also own their own hospital properties and employ physicians in a manner similar to the large corporations, but all this medical service is maintained at the low monthly pay rate for members only. Because of the limited amount of income from members on such low monthly rates, these associations would soon be obliged to discontinue their service were it not for generous endowments left by members and the profit that accrues from hospital care of the public at regular rates.

Hospital associations are misnomers. In most instances they are merely the business offices of groups having medical contracts for sale. These "associations" usually have a few "staff physicians" on salary, but most of the physicians who care for the contract cases are paid on a "piece work" basis. Not infrequently, these physicians have no little difficulty in securing payment for services rendered and then at the amount allowed by some lay business manager whose business it is to deal with the profession as well as with the employers and the employees. It is not uncommon for these czaristic adjusters to dictate to physicians the extent to which their services shall go in an individual case.

Since some of the best medical groups are doing contract practice, naturally the type of service they render is superior to that given by many of the "hospital associations." Even while engaged in contract medicine, these medical groups claim that they are not satisfied with this type of practice; but their disavowal of the practice lacks sincerity, since they continue to use all the methods of the system to hold present contracts and to get new ones.

Much of the anxiety on the part of the profession over contract practice has grown out of the methods used by individual physicians in the field. For instance, one organization of this type is owned and operated by one physician with a large number of associates operating in many communities. A copy of the contract used by this physician will be found in the Appendix marked T-1.

In one particular instance which comes to mind the owner and operator of the contract plan views medical practice with an extremely cold-blooded business attitude. He appears to have no interest in any form of medical charity; he thinks very poorly of organized medicine; his respect for medical ethics is apparently negligible; he realizes that he is under fire but hopes he will be able to retain his county medical society membership. He thorougly believes that his system is the only correct one and that all physicians must ultimately solicit business, but he is sure that organized medicine cannot do this. He refuses to give out the details of his plan, stating that it is worth money to him and if described or published would be used by his competitors to his disadvantage. He is honest in the belief that his is the only "scientific medical insurance," but he is operating his system without any supervision by the state insurance department. He admits that his plan would not be successful in agricultural districts and he prefers not to contract with individuals or with other members of the families of employees, since such contracts require too much bookkeeping and the pay is not assured.



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WHO PROVIDES MEDICAL AND HOSPITAL CARE FOR ME when need arises, you ask? *The Pacific Life Extension and Hospital Service System*—the largest and most successful medical service organization in Southern California. Established several years ago, it has provided highly satisfactory medical and hospital care for many thousands of members, including employes of many large industries in Los Angeles.

THE PACIFIC LIFE EXTENSION AND HOSPITAL SERVICE SYSTEM is a complete medical, surgical and hospital service. Its members are provided this complete care by any of more than 200 leading licensed physicians, surgeons and specialists practicing in the various branches of medicine and surgery. Members may choose from an extensive list of doctors, surgeons, hospital and other treatment agencies. You get this list with your membership card

EVERY RECORD SUBSCRIBER MAY TAKE ADVANTAGE OF THIS REMARKABLE SERVICE. If you are already a subscriber, your agreement to continue having The Record delivered at your home or office for one year makes you eligible for either service offered through The Record Health Service League. If you are NOT a subscriber, you become eligible for League membership and service by agreeing to take The Record by carrier for one year.

NO MATTER WHERE YOU LIVE IN SOUTHERN CALIFORNIA, YOU MAY AVAIL YOURSELF OF THIS UNUSUAL SERVICE. Write or call up The Record, TUcker 2121, at any time, and a representative of The Record Health Service League will be glad to explain any detail of the medical and hospital service provided for members.

Reach for Your Scissors Now and Cut the High Cost of Illness by Clipping This Application.

APPLICATION

L.A. RECORD HEALTH SERVICE LEAGUE
612 WALL ST., LOS ANGELES, CAL.

I hereby subscribe for The Los Angeles Record, for one year, to be delivered by carrier at my home, and agree to pay your carrier 45 cents at the end of each month.

For an additional payment of $1 in advance, you agree to register me with the Pacific Life Extension and Hospital Service System, Inc., Ltd., entitling me to either one of the following services provided by that System:

SERVICE NO. 1

Medical, surgical and hospital services, for myself and all members of my family, at the reduced schedule of rates as provided by The Record Health Service League and the Pacific Life Extension and Hospital Service System, or

SERVICE NO. 2

Medical, surgical and hospital service provided in the agreement of the Pacific Life Extension and Hospital Service System, Inc., Ltd., for myself personally, without charge, as long as I pay to the System $1.35 per month, the reduced rate arranged for me by The Los Angeles Record.

It is understood and agreed that my membership in The Record Health Service League, and eligibility for service at the rates quoted under either of the above plans, shall continue only as long as I am a subscriber to The Record.

I select Service No.........

I enclose $1 for registration.

(am)
I (am not) a subscriber to The Los Angeles Record.

NAME..

ADDRESS..

CITY.............................. PHONE....................

To the Subscriber:

If you do not receive your membership card within two days of mailing application, please notify The Record Circulation Manager, TUcker 2121, 612 Wall Street.

Display advertisement occupying three full columns of a western newspaper early in November, 1931.

From reliable sources it is reported that this physician has stated that his contract practice is only 40 per cent of his entire business. In this instance, as in most contract practices, the exemptions (not covered by contract) and the patients not covered by contract but brought in by contract covered individuals help to increase the gross income. This physician is very inflexible in his attitude toward the organized profession and he is determined to influence employers to demand of the state legislature that the present contract system be retained and protected. This attitude is held by many contract physicians.

In an effort to meet the growing competition of contract individuals and medical groups, one or more county medical societies have devised plans to take contracts as organized bodies. These societies were motivated by the desire to furnish to the low income group a medical service at a small cost, to render the same quality of service as that given their regular fee patients, to offer free choice of physician, and to eliminate unfair competition among the physicians in the community. In attempting to solve the problem, the county society has been drawn into using some of the same methods of contract getting used by other contract groups; viz., the business manager or solicitor. A copy of the type of contract used by one county medical society group will be found in the Appendix marked T-2. It was found impossible to enlist the support of the entire county medical society membership in this project, only about 50 per cent agreeing to the plan.

Hospitals have entered the field of contract practice by assuming the business management of contract solicitation. This form of contract practice is no less devoid of the unethical and undesirable features than the types already mentioned.

A recent venture in contract practice is a plan announced by a western newspaper, a display advertisement of which appeared in an early November, 1931, issue of the paper in question. The advertisement, a reduced reproduction of which appears in the accompanying illustration, says:

> Cut the High Cost of Illness!
>
> The [paper] offers its readers a cure for Doctor Bills!
>
> Join the ——— Health Service League. Your subscription to the [paper] plus one dollar Registration Fee—Makes you a member and provides for you and your entire family medical, surgical and hospital care at prices you can really afford to pay.
>
> The [paper] has been working for a long time to make an arrangement which would provide lower medical costs for a high standard of medical service. At last we have it. The ——— Health Service League has been successful in making a satisfactory arrangement with the ——— System to provide the highest type of medical, surgical and hospital service to our readers, 24 hours of the day and every day of the year.
>
> Take your choice of two services:
>
> Service No. 1, medical care at half the usual cost: Service No. 1 assures you and all members of your family the best medical and hospital care in any illness, operation or accident—by competent, chosen physicians, surgeons and specialtists—at a fixed scale of fees arranged and approved by the ——— Health Service League. These fees are approximately one-half the fees regularly paid by the suffering public.
>
> Your registration fee of One Dollar places this service at your disposal whenever needed.
>
> There is no red tape. In case of illness, you present your identity card where directed, or call a given telephone number. The result is the best medical care.
>
> Service No. 2, complete medical service at low cost: For $1.35 paid monthly in advance to the ——— System, registered ——— subscribers are assured medical, surgical and hospital care for ailments and accidents without further charge.
>
> This is the lowest-priced—and best—service of its kind offered by any hospital or medical service organization in the state of ———.
>
> Each member who subscribes for this $1.35 per month complete medical service is given a printed agreement setting forth the full benefits to be obtained and a list of physicians, surgeons, hospital and other treatment agencies designated and approved by the ——— System and the ——— Health Service League.
>
> Who provides medical and hospital care for me when need arises, you ask? The ——— System—the largest and most successful medical service organization in [state]. Established several years ago, it has provided highly satisfactory medical and hospital care for many thousands of members, including employees of many large industries, in [city].
>
> The ——— System is a complete medical, surgical and hospital service. Its members are provided this complete care by any of more than 200 leading licensed physicians, surgeons and specialists practicing in the various branches of medicine and surgery. Members may choose from an extensive list of doctors, surgeons, hospital and other treatment agencies. You get this list with your membership card.
>
> Every ——— Subscriber may take advantage of this remarkable service. If you are already a subscriber, your agreement to continue having the [paper] delivered at your home or office for one year makes you eligible for either service offered through the ——— Health Service League. If you are not a subscriber, you become eligible for League membership and service by agreeing to take the [paper] by carrier for one year.
>
> No matter where you live in [state], you may avail yourselves of this unusual service. Write or call up the [paper], [telephone number] and a representative of the ——— Health Service League will be glad to explain any detail of the medical and hospital service provided for members.
>
> APPLICATION
>
> ——— Health Service League at [address]
>
> I hereby subscribe for the [paper] for one year, to be delivered by carrier at my home, and agree to pay your carrier 45 cents at the end of each month.
>
> For an additional payment of $1 in advance, you agree to register me with the ——— System, Inc. Ltd., entitling me to either one of the following services provided by that system:
>
> SERVICE NO. 1
>
> Medical, surgical and hospital services, for myself and all members of my family, at the reduced schedule of rates as provided by the ——— Health Service League and the ——— System; or
>
> SERVICE NO. 2
>
> Medical, surgical and hospital service provided in the agreement of the ——— System, Inc., Ltd., for myself personally, without charge, as long as I pay to the System $1.35 per month, the reduced rate arranged for me by the [paper].
>
> It is understood and agreed that my membership in the ——— Health Service League, and eligibility for service at the rates quoted under either of the above plans, shall continue only as long as I am a subscriber to the [paper].
>
> I select Service No ....
> I enclose $1 for registration.
> I $\left(\begin{smallmatrix}\text{am}\\ \text{am not}\end{smallmatrix}\right)$ a subscriber to the [paper].
> Name ....
> Address ....
> City .... Phone ....
>
> To the Subscriber:
>
> If you do not receive your membership card within five days of making application, please notify the ——— Circulation Manager, [telephone at] [address].
>
> Reach for your scissors now and cut the high cost of illness by clipping this application.

From such a glaring account it would appear that health and medical relief is indeed at the crossroads of the bargain counter. But to those who know it is perfectly clear that the rates quoted are utterly inadequate to provide any medical services except the barest first aid for minor afflictions. The proposition is thoroughly unsound economically since to provide complete medical services at such prices would mean swift bankruptcy for any honest and conscientious individual or group.

The most recent venture in contract practice is announced from another section of the country where certain groups of cooperatives in a certain industry are being led into a scheme for cut rate medical care by a physician not in active practice who defies all medical organizations to interfere with his experiment. This plan is so new that no details of its working can be obtained; suffice it to say that the physician promoter flatly refuses to take into his confidence for council, assistance or guidance the local medical societies in the territory over which the scheme is to operate.

MUTUAL BENEFIT ASSOCIATIONS AND TRADE UNIONS

Industrial mutual benefit associations and trade unions have not strongly entered the field of contract practice. These organizations have, for the most part, confined their interests in and efforts toward the protection of the income of their members. In some instances, however, sick benefit funds have been established but participation in these funds is usually limited to those cases not entitled to payments under the workmen's compensation laws.

A study of mutual benefit associations recently made by Brundage and reported in *Public Health Reports* shows that an appreciable number of these associations provide some medical service and care to their members.

LODGE PRACTICE

Lodge practice, as usually found, consists in the employment of a physician by a local fraternal organization to serve its members on contract, by salary or for a stipulated sum per member annually. Medical and surgical services and hospital care are provided for members on the basis of a monthly membership fee. In most instances, medical and hospital benefits provided by the lodge for its members are contingent on the member using the physicians or hospitals approved and designated by the lodge. It is not known what considerations govern in the selection of physicians and hospital facilities.

Lodge practice assumes its largest proportions in the care of tuberculous and the aged or retired members. Several large institutions for these purposes have been established for many years. Tuberculosis sanatoriums are also maintained by some of the trade unions.

METHODS OF OPERATION AND QUALITY OF SERVICE

Throughout the contract proponent groups there exists a definite fear or obsession lest the organized medical societies object or interfere with contract operations. Likewise, there is a craftiness in business dealings and a circumvention of accepted ethics in many contract plans.

As long as contract practice remained in the field of practical necessity, it created little or no alarm. But, as the exigencies of pioneer projects passed, the emergency methods of medical care were not discarded but were retained to become the basis of new schemes to compete with regularly established medical practice. Workmen's compensation laws were passed and funds became available with which to pay for the medical care of the injured employee. These funds, which assured the payment of fees for hundreds of thousands of potential patients, became the envy of the conniving contract cliques. At this point a method was introduced in contract practice similar to pressure selling in the business world.

In the medical profession, in which no ethical individual advertises, he who first adopts the practice, although by so doing he becomes unethical and is marked a quack, wins interest at once with very little expenditure. Certain types of contract schemes would not be successful if contract physicians were obliged to wait until business and industry sought them out for their particular services. Therefore, an advertising method was adopted to carry the message, at first, to organizations having a large number of employees, later to small industries, laundries, garages, business houses, apartment houses and even individuals. The business agent, manager, capper, adjuster or solicitor thus became the advertising agent of the contract physician or group. With the incorporation of this element into contract practice methods, pressure of getting business became greater, new groups or associations were formed to enter the contract field, and definite unfair competition with private medical practice was created. It was then a short and easy step to underbidding and misrepresentation to get contracts.

Although it is claimed that the quality of service is as good as can be had anywhere, there is sufficient evidence to show that this is not universally true. Under some contracts, patients are treated by remote control, at long distances. Patients often prefer to pay the family physician to manage a serious illness or to do an operation rather than to accept the services of the contract physician or staff. It is charged that some contract physicians do as little as possible for their contract patients since to treat them well would encourage them to demand more treatments, calls or medicine than are considered necessary by these contract physicians.

It is appropriate here to quote the following statements taken from a report on contract practice prepared by a special committee of the ——— County Medical Society appointed to study the question of contracts operating under the state law and to define the position of the medical profession with respect to this subject:

> Early in 1930 the ——— County Medical Society ordered a fact finding investigation and the initiation of efforts to correct certain conditions which were known to have progressed to the point of having become public health problems.
>
> Official action of the medical society limited the activities of the committee to three specific problems:
>
> 1. Certain contracts under the ——— law.
> 2. Certain so-called medical contracts executed by doctors contracting under the ——— law.
> 3. Commercial solicitation of professional business, particularly to secure the above contracts, either by physicians themselves or by lay agents hired direct or through corporate agencies.
>
> The ——— law has been in operation thirteen years. Conceived in altruism toward the workmen to ease the financial burden incident to the surgical care of injuries, it has made possible the exploitation of the medical aid fund by contract doctors for profit to the possible tragic detriment of the injured, a condition contrary to good financial policy and good public health policy.
>
> The law legalizes contracts and provides that the employer and employees in conference may choose the contract alternative. It does not provide nor does it specifically prohibit, nor was it the intent of the law that doctors should take the initiative, go themselves or send their hired lay representative to employers and groups of employees to solicit the contracts as they have done and are now doing.
>
> Under the terms of the contracts as executed by contract doctors, ten cents on the dollar of the medical aid trust fund goes to the state for administrative expense; ninety cents on the dollar, at the time of collection from labor and industry, is turned over to the contract doctor. He is custodian of the fund; he administers it, determining what services shall be rendered, including his own professional services, hospital, nurses, drugs, appliances, and even professional consultants. He disburses for all services and keeps as his own the unexpended portion.
>
> Therein lies the censurable financial policy, and therefrom arise the possibilities of detriment to public health.
>
> In exploiting financial possibilities for personal gain under the law, contract doctors sometimes reduce services to injured workmen to the point of inadequacy and inefficiency. Under their administration of the fund a leg may be amputated to save the hospital expense incident to effort to save the leg, or workmen with fractures and serious internal injuries may be allowed to succumb without effort to determine and treat the internal injuries because of the hospital expense entailed during repair of the fractures in case life is saved. They hire laymen to solicit the contracts, thereby diverting a considerable portion of the fund to channels of commercialism, and as a corollary to the ——— law contracts, contract doctors are carrying on a wildcat health insurance business. They are known to have paid up to 20 per cent of the gross revenue derived from the contract and up to $600 a month to lay agents through whom the contracts were secured. Through the use

of hired lay agents they secure contracts remote from their home town, then sublet to local doctors for 25 per cent of the total revenue, their sole service being to secure and to sublet the contract, or they hire the cheapest available local doctor to render service under the remote contracts and often require him to pay them 50 per cent of the gross revenue derived from all private practice developed while in their employ.

In some instances a local physician has secured the necessary signature to the petition intending to take over the contract for the industry. Remote organizations hearing of the fact, through influence they could bring to bear, caused word to be sent to the mill that the employees should rescind their signatures immediately or if necessary every employee would be fired and an entire new crew hired. In these instances the workmen contributed 50 per cent of the revenue and under the law are supposed to have equal authority with the employer regarding who shall do their medical work under the law. A remote group of physicians is so intrenched that they are able to take the bread and butter from the mouths of laborers, their wives and children unless the medical aid contract is awarded to them. The workmen have grievances on this score and about the adequacy and efficiency of the services to the injured, but they dare not protest.

The groups of workmen included under the ——— law comprise convenient groups to bring into the wildcat health insurance activities. For from seventy-five cents to one dollar and fifty cents a month, contract doctors agree to render all professional services and pay all costs incident to the care of accidents not included under the ——— law and all sicknesses with specific limited exceptions. This contract is a limited health and accident insurance policy with all the evil possibilities of wildcat insurance, to wit:

1. The contract doctor is the insurer.
2. The insurer is unsupervised as to financial resources, and as to performance under his contract.
3. He determines the rates, administers the insurance fund, determines what services shall be rendered, renders that service personally or through agents in his hire, and retains the unexpended portion.

Any insurance actuary will testify to the fact that the rate is utterly inadequate; every man operating would go bankrupt in a short time if he fulfilled the terms of the contract. Any unprejudiced physician will testify to instances of failure of the insurer to fulfil his contract.

A man with a perforating ulcer of the duodenum went nine times to the contract doctor. The eighth and ninth times he was so ill his son had to take him after refusal of the contract doctor to call at the home. No adequate history was obtained, absolutely no examination was made. He was given a box of pills, some ten cents in value, which proved so laxative that their use had to be discontinued. He then consulted his family physician, who rendered proper service, including hospitalization and operation, incurring some $400 expense. The contract doctor wilfully and negligently evaded financial obligation, the professional responsibility and effort to save for himself the cost of hospitalization and special nurses.

The ideals and ethics of the medical profession have through all time paralleled very closely the ideals and ethics of the legal profession. The ——— act of the state of ——— specifically prohibits the use of hired lay solicitors for securing professional work for lawyers. It is declared to be against public policy. The ——— act of the state of ——— does not contain any similar clause, although seventeen states and territories do have laws prohibiting the practice with revocation of license as the penalty.

CLOUDING OF CONTRACT CLAUSES

Not all patients having contract privileges understand the coverage or exemptions of the contract. Under the pressure of increasing competition, the agent or solicitor may have misrepresented the coverage when making the sales. The patient suffers from these fraudulent methods when he finds that conditions for which he presents himself for treatment are not included in the contract and therefore he must pay for the treatment or seek a private physician. Almost all types of contracts, except those used by the cooperative groups and newspapers, cover the industrial workers only. It is claimed that there is too much bookkeeping to warrant taking contracts with individuals not on a payroll or members of the employee's family. Whatever the advantages claimed for strictly industrial contract practice, these benefits cannot accrue to women, unless they are employees, and in no case to children.

PREVENTIVE MEDICINE DISREGARDED

In only one instance that has come to our notice is any attention ever given, under contract coverage, to preventive medicine. Generally speaking, contract practice is essentially curative medicine and the person who wishes to keep well by such means as the periodic health examination must still use his family physician or pay the contract group. Even though preventive medicine were to be practiced in contract medicine, two groups with which prevention is most important and effective, viz., women and children, would not be touched except for the few women who might be employed in the contract covered groups.

FREE CHOICE OF PHYSICIAN A MISREPRESENTATION

It is claimed that some contract plans offer the individual covered a free choice of physician. It is possible that there are such plans contemplated but, as far as is known at present, there is no plan which includes all the physicians in a community. It is usually stipulated that such free choice of physician is limited to those physicians who are associates of or who are approved and designated by the contract holders. Use of the term "free choice of physician" is, under these conditions, definitely misleading if not fraudulent misrepresentation.

EFFECT OF CONTRACT PRACTICE ON THE PUBLIC

Contract practice has created in the minds of both the individual and the public a false impression of physicians and medical service. In contract practice not only the financial or business but also the intimate professional relationships between patient and physician are changed. These relations, which for centuries have been peculiarly close and personal, are now robbed of that intimacy and friendliness of understanding which characterizes medical practice.

Now contract advocates come out with a new, high powered model of medical service characterized by mass production methods, short cuts and abbreviations in procedure which benefit the physician or group not the patient, cold impersonality, long distance remote control and cash-in-advance payments.

There is little occasion for surprise that the layman who comes in contact with such a pseudoprofessional process and who analyzes it should consider the physician in the scheme a mere robot and his treatment procedures only stereotyped mechanical mimicry.

Most types of contract practice are devised for the promoters and not for the patients. It is because of this fundamental fallacy that confidence in the profession is disturbed. Nor is the quality of medical service the only element that influences profoundly the establishment and maintenance of confidence. The rates charged for contract work imply that all other medical fees are unreasonably high. When the truth is known, contract practice is not a complete coverage. Were it not for the exemptions, the dodging of responsibility and the almost 100 per cent collection guarantee, the holders of contracts would be forced to discontinue the practice because of its economic impracticability.

Contract rates also imply that physicians have a sliding range of fees. Medical and surgical treatment are indefinite scientific services measured in nature and amount according to the demands of the individual. Medical service, therefore, is not comparable to commodities sold by units of measure or weight, which are always constant. The bidding and underbidding and bargaining and adjusting practiced in securing contracts places medical services on a level with ordinary merchandise.

CONTRACT PRACTICE DEFINED

This brief discussion, with the few examples cited, is intended to stimulate an earnest, exhaustive examination of the methods of providing medical service rather than to describe completely the complex and disturbing system known as contract practice.

The Judicial Council has defined "contract practice" in the following words:

> By the term "contract practice," as applied to medicine, is meant the carrying out of an agreement between a physician or group of physicians as principals or agents and a corporation, organization or individual, to furnish partial or full medical services to a group or class of individuals for a definite sum or for a fixed rate per capita.

This definition, I believe, will be found to cover every form of contract practice. It will be observed that in the definition no mention is made of the ethics of the practice for the reason that contract practice per se is not an ethical question, ethics being concerned with the form of the contract and the conditions under which it is made. That there are many conditions under which contract practice is not only legitimate and ethical, but in fact the only way in which competent medical service can be provided, becomes evident on analysis. For instance, when large numbers of workmen are employed remote from urban centers, as in some mining or logging camps, efficient medical service can be secured only by contracting with some competent physician to do the work. Certain industrial situations arise wherein large employers of labor are compelled by law to provide medical services for their employees under certain conditions, and this at times can be secured only by some form of contract. A community too small to offer sufficient inducements to a competent physician to locate therein may secure one by some form of contract or agreement as to compensation. It is perfectly evident, therefore, if one is to judge whether a contract is ethical or not, that the form and terms of the contract must be known, as well as the particular circumstances under which it is made. As there is such a great variety of contracts, and as their form and the circumstances under which they are made differ so widely, it seems impossible, or at least inadvisable, to attempt to define what constitutes an ethical contract. Each case must be judged on its own merits after all the facts pertaining thereto are known. There are certain points, however, that may be formulated which, when present, one or more of them, definitely determine a contract to be unfair or unethical. These may be stated as follows:

1. When the compensation received is inadequate, based on the usual fees paid for the same kind of service and class of people in the same community.
2. When the compensation is so low as to make it impossible for competent service to be rendered.
3. When there is underbidding by physicians in order to secure the contract.
4. When a reasonable degree of free choice of physicians is denied those cared for in a community in which other competent physicians are readily available.
5. When there is solicitation of patients directly or indirectly.

In the interpretation of the rules of ethics as applied to the practice of medicine: (1) By the word "practice" is meant the performance or application of medical knowledge; (2) by "solicitation" is meant to bespeak professional patronage by oral, written or printed communications either directly or by an agent; (3) by "patient" is meant any person ill or otherwise.

SO-CALLED HOSPITAL AND HEALTH ASSOCIATIONS

In its report to the House of Delegates at Philadelphia, the Judicial Council gave consideration to the ethical and economic status of so-called hospital and health associations, controlled by groups of laymen, or by individuals, offering medical and hospital service to any who will buy "membership" and pay a nominal sum each month as "dues."

The Judicial Council's report states: "Such schemes have been put into operation in various places and have failed within a few weeks or months because of inadequate income or because of failure to render good service. The Judicial Council has regarded these schemes as being economically unsound, unethical and inimical to the public interest.

"Within the last year, (1930-31) some community hospitals have announced their intention to provide medical, surgical and hospital service to families on a flat rate basis. In at least one instance, such service has been offered to families for $35.00 a year, irrespective of the number of members in such families. In most instances, certain exceptions are made in that persons with chronic diseases are not entitled to receive the benefits of the plan and obstetrical service is not supplied without additional compensation. The members of the Judicial Council doubt that it is wise to lead the people in any community to believe that all necessary medical and hospital service, even though chronic diseases and obstetrical care be excepted, can be provided for the average family for $35.00 a year. In the cases presented to it the Judicial Council has advised against adoption of such plans by community hospitals because it is believed that they are not economically sound in that they may be unfavorably affected by conditions entirely beyond control under which contracts cannot be fulfilled. There are other aspects of the matter that readily present themselves for consideration involving the interests of physicians in the community who cannot participate in such plans."

With these definitions and explanations it should not be difficult to determine the ethics of any type of contract practice. Personal interests and professional advantages must be eliminated when judging the merits of each plan; the welfare of patients, the integrity and competence of those operating the plan, and the method and adequacy of meeting the medical fee should receive first consideration.

TIME FOR THOROUGH INVESTIGATION AND MODIFICATION

The organized profession has no desire to obstruct reasonable and honest efforts to provide the best medical care possible to persons receiving low incomes. In examining the methods now being promoted to accomplish this end, it is essential that the welfare of the individual be kept always foremost.

It is believed that the success of any system must be predicated on the separation of the medical service rendered by the profession and the collection and administration of funds with which to pay for the service. Furthermore, it is believed that the practice of requiring physicians to certify to cash benefits must be modified or entirely eliminated. The physician's chief interest and duty should be in the care appropriate to returning his patient to normal health as soon as possible; his is a service benefit to the patient and he should not be made the "goat" in passing judgment by certificates or otherwise on cash benefits in which his patient may share.

Since contract practice is essentially a form of insurance benefit, it becomes necessary to consider well the method of certifying incapacity for work in any modification of the present system.

It is well, also, to consider whether we are undertaking, in the preparation of physicians, to produce a brand of professional attainment which we shall not be able to use because of the cost. Is the medical profession entering an era of transition or must it develop a changed method of practice to meet changing social trends?

Is the culmination of centuries of development, research and refinement in medicine to become a mere mechanical manipulation controlled by a few nonmedical managers or shall the medical profession perfect its own methods of providing sound, scientific service at prices people can pay?

SUMMARY

Although there are many details of contract practice which deserve much more detailed description and comment than is possible in this report, it may be stated that contract practice

1. Took its origin largely from necessity;
2. Has been legalized, in certain places by state statute;
3. Under certain conditions and in some forms is both ethical and legitimate;
4. In general, has become highly commercialized and competitive;
5. Is largely limited to the pay roll class;
6. Does not, in most cases, extend its provisions to women and children;
7. Concerns itself, almost without exception, to curative medicine and does not include preventive measures;
8. Shows no interest in public or individual welfare;
9. Furnishes medical care which is often inferior in character;
10. In many instances is characterized by underbidding, subletting, misrepresentation and racketeering;
11. Is economically unsound in many of its present forms;
12. Is essentially sickness insurance usually not supervised or regulated;
13. Is often used by the operators thereof to influence legislation in favor of extension of the plan;
14. In many of its present forms, lowers the confidences of both the individual and the public in the medical profession;
15. Has some features that deserve refinement and extension and others that are unethical and dangerous and should be abolished.

535 North Dearborn Street.

APPENDIXES

The following appendixes are examples of some of the contracts to which reference has been made in the foregoing article. The form and wording of the contracts are based on information that has been received by the American Medical Association and documents on file in its headquarters.

APPENDIX T-1

THIS AGREEMENT, entered into between THE ——— CLINIC of ———, party of the first part, and ———, of ———, party of the second part,

WITNESSETH: The party of the first part in consideration of the payment by the party of the second part of the sum of money herein mentioned hereby agrees to furnish, perform, and render to the employes of the party of the second part the following medical service:

HOSPITAL SERVICES: Care in a ward bed of the ——— or ——— General or ——— Contagious Hospital as long as necessary, but not to exceed six months, for such conditions as are ordinarily accepted by the management of aforesaid hospital. Private room and private nurse in necessary cases will be furnished at the discretion of the party of the first part.

Operating room, laboratory work, plaster cast, x-rays and all drugs and medicines, will be furnished while at the hospital.

SURGICAL SERVICES: All surgical services for operations or injuries not provided for under the State Compensation Act will be furnished.

SICKNESS: All diseases, including contagious diseases, such as smallpox, diphtheria, scarlet fever, etc., will be taken care of at the above mentioned hospitals, or at home, or our office.

ADDITIONAL SERVICE: All medicines, drugs, prescriptions at authorized drug stores, crutches, braces, surgical belts, dressings, plaster casts, and splints will be furnished. All necessary laboratory work, x-rays, including dental x-ray, and all examinations for glasses (but not including glasses), will be furnished. Insulin will be furnished for a period of six months.

House calls when necessary will be made.

Ambulance service in necessary cases will be furnished.

A physical examination, including dental examination and x-ray of teeth when necessary, will be given free of charge to the employees and prospective employees when desired by the employer.

First aid training will be given to the safety men of the firm at stated intervals. Necessary first aid kits and supplies will be furnished.

EXCEPTIONS: Venereal diseases, conditions peculiar to sex, and conditions existing before commencing to pay medical fees under this contract.

GENERAL AGREEMENTS: Party of the first part agrees to at all times maintain a staff of at least a Major Surgeon, Physician, Eye, Ear, Nose and Throat Specialist and a Dentist.

Complete x-ray, physiotherapy, and laboratory departments and 24-hour telephone service will be maintained.

The party of the second part agrees to notify the party of the first part of any sickness or injury requiring medical or surgical services. In no event will the party of the first part pay for services of any physician or surgeon other than those designated by said party of the first part, nor be liable for or pay for any services, bills or expenses, unless authorized and approved by the party of the first part.

When deemed necessary by the party of the first part, services of a specialist to be designated by said first party will be furnished.

PAYMENTS: That the said party of the second part shall collect from each of its employes the sum of ten cents per day for the first ——— days of each month or any fraction thereof that each man in their employ works, and that the moneys so collected is a trust fund as provided by Chapter 136 of the Session Laws of 1929, and that the second party shall hold same in trust and pay same to the party of the first part on or before the 20th day of the month following collection.

This contract shall become effective ——— and continue for a period of ——— years.

THE ——— CLINIC,
Party of the First Part,
By ——— .
———, Party of the Second Part,
By ———.

APPENDIX T-2

THIS AGREEMENT, made this first day of ———, 193, between the ——— COUNTY INDUSTRIAL MEDICAL AND SURGICAL SERVICE BUREAU, INC., of ———, party of the First Part, and ———, Party of the Second Part:

WITNESSETH:

HOSPITAL SERVICE:

That in consideration of the prompt payment by said Party of the Second Part of the amount hereinafter set forth, said Party of the First Part agrees to furnish medical and surgical treatment to those employes of said Party of the Second Part who may require same. Such services and care to be prompt and efficient, without discrimination or favoritism, and to cover injuries occurring at all times not covered by the First Aid Law, and illness, with exceptions as hereinafter noted.

Said treatment to consist of medical and surgical attendance, including operations, drugs, medicines, nursing, bed and board in a ward of the

——— General Hospital, or ——— Hospital (at the option of the patient), in the City of ———. The use of an ambulance will be allowed when necessary. Said service and treatment not to exceed ninety days (accidental injuries and surgical operations excepted).

NON-HOSPITAL SERVICE:

In the event of any employee or said Party of the Second Part needing the services of a physician, but not needing hospital care, said Party of the First Part agrees to furnish treatment at the office of the physician chosen or at the home of the employee if necessary. Said treatment to include all necessary drugs, medicines, dressings, etc. Prescriptions will be filled free of charge at drug stores designated. Said treatment and service not to exceed ninety days (accidental injuries and surgical operations excepted).

Eye injuries and diseases of the eye shall receive the immediate attention of an eye specialist.

PAYMENTS:

The employees of said Party of the Second Part shall be divided into two groups as regards payment.

The first group shall include all those employees who come under the State Medical Aid Law, and who are covered by the First Aid contract which is a joint contract herewith. The Party of the Second Part agrees to pay to the Party of the First Part for each employee of the group, the sum of ——— per month, which together with the amount provided in the First Aid Contract, shall constitute full payment.

The second group shall include all those employees who do not come under the provisions of the State Medical Aid Law. The Party of the Second Part agrees to pay the Party of the First Part for each employee of the second group, the sum of ———.

All payments to be made on or before the 15th of each month for the pay-roll of the previous month.

The Party of the First Part reserves the right to inspect the pay-roll of said Party of the Second Part to ascertain the number and identity of employees. The said Party of the First Part shall not be held liable for treatment under this contract while said Party of the Second Part shall be in default of any monthly payment.

EXCEPTIONS:

Illness not common to both sexes; illness or disability caused by or received while insane; injuries incurred while fighting, rioting, or otherwise violating the law; caused by or resulting from the use of narcotics or intoxicants; venereal diseases and tuberculosis are not entitled to care or treatment under this contract.

GENERAL AGREEMENTS:

The employees of said Party of the Second Part shall be entitled to select any physician, surgeon or specialist, who is a member of the Bureau, a list showing said membership to be posted at the place of employment.

The party of the first part shall not be liable for the bill of any physician who is not a member of the Bureau.

Any employee entitled to medical attendance or hospital care, shall present to his physician an order for treatment properly filled out and signed by some one representing said Party of the Second Part with authority to issue same.

Employees entering the hospital must comply with the rules and regulations thereof and the orders of the physician in charge of the case and in case of their failure to do so, they may be excluded therefrom and shall not be entitled to further services hereunder.

Said Party of the First Part shall not be held liable for treatment of any injury or sickness existing prior to the employees entering the employment of said Party of the Second Part, or before commencing to pay medical dues. Said Party of the First Part shall not be held liable for treatment of sickness or injury after the termination of this contract, or after the patient has left the employ of said Party of the Second Part.

Said Party of the First Part shall pay for all x-ray pictures when authorized. Appliances such as glasses, atomizers, rubber stockings, and plates, shall not be paid for by the Party of the First Part.

This contract is a joint contract with the State First Aid Contract of even date herewith between the parties hereto, and shall terminate jointly with said First Aid Contract in case of legislative change, or it may continue from year to year, and may be canceled by either party giving thirty days' written notice to the other party of its intentions so to do.

IN WITNESS WHEREOF, the parties hereto have caused this agreement to be executed in duplicate by their proper officers on the day and year first above written.

By ———, Party of the First Part.
By ———, Party of the Second Part.

APPENDIX L R-1

Copy of Identification used in plan 1
Personal Identification Card
for members of
——— HEALTH SERVICE LEAGUE

This is to certify that the bearer, whose name is signed hereto, is a member of The ——— Health Service League, and as such is entitled to the benefits of the special rates for medical, surgical and hospital services by physicians and surgeons and other treatment agencies provided by The ——— System, for bearer and family.

It is understood that in consideration of the special arrangement, the bearer is to pay cash for services or comply with the credit requirements of the respective systems.

It is further understood that the bearer's membership in The ——— Health Service League, with accompanying benefits, is contingent upon his remaining a subscriber to The ——— for one year from this date.

Date ———.

Member's Signature ———.

APPENDIX L R-2

APPLICATION FOR "DESIGNATED AND APPROVED" PHYSICIAN & SURGEON OF THE ——— SYSTEM, ———, - ———.

Date ———, *193—.*

TO ———
——— System, Inc., ———.

I hereby make application for appointment as one of your "designated and approved" physicians and surgeons.

I declare that I am a graduate, licensed, registered physician and surgeon in the State of ———.

I further declare that I am now or my qualifications are such that I am eligible to become a member of the medical society in the county in which I reside.

I agree to faithfully fulfil my professional obligations to my patients to the best of my ability and to cooperate with the instructions, rules and regulations of your "System."

I understand that I am to charge for my professional services in accordance with your approved fee schedule, which is based upon fees the same as or similar to those as set forth in that which is generally referred to as the ——— Compensation Fee Schedule.

I graduated from ——— Medical School in [year].

Signed ———, M.D.
Office Address ———.
Office Telephone Number ———.
Residence Address ———.
Residence Telephone Number ———.

City ———.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

W. A. PUCKNER, Secretary.

DIPHTHERIA IMMUNITY TEST (SCHICK TEST) (See New and Nonofficial Remedies, 1931, p. 383).

Eli Lilly & Company, Indianapolis.

Diphtheria Toxin for Schick Test, Diluted Ready for Use-Lilly.—A diphtheria toxin diluted with physiological solution of sodium chloride containing 0.1 per cent gelatin and having a p_H of 7.8 to 8.0. The diluted toxin is of such strength that 0.1 cc. (one dose) given intracutaneously constitutes one-fiftieth minimum lethal dose for a guinea-pig of 250 Gm. weight. It is marketed in packages of one vial containing sufficient for ten tests (V-926), and in one vial containing sufficient for 100 tests (V-928).

NORMAL HORSE SERUM (See New and Nonofficial Remedies, 1931, p. 346).

Lederle Laboratories, Inc., Pearl River, N. Y.

Normal Horse Serum (1:10 Dilution) for the Conjunctival Test.—Normal horse serum one part, diluted with physiological solution of sodium chloride nine parts, and containing 0.4 per cent chlorbutanol. Marketed in packages of one vial with dropper outfit. To determine hypersensitiveness to the proteins of horse serum, one drop is placed in the conjunctival sac.

SCARLET FEVER STREPTOCOCCUS ANTITOXIN (See New and Nonofficial Remedies, 1931, p. 353).

The Gilliland Laboratories, Inc., Marietta, Pa.

Scarlet Fever Streptococcus Antitoxin (Refined and Concentrated).—It is prepared by the method of Drs. Dick under U. S. patent 1,547,369 (July 28, 1925; expires 1942) by license of the Scarlet Fever Committee, Inc. The serum is concentrated by the method employed in concentrating diphtheria antitoxin. Marketed in packages of one syringe containing 2,000 units (prophylactic dose), and in packages of one syringe containing 10,000 units (therapeutic dose).

TRICHLOROETHYLENE. — Trichloroethylenum. — Trichlorethylene.—$CHCl:CHCl_2$.—1-chloro-2-dichloro-ethylene.

Actions and Uses.—The actions of trichloroethylene have not been investigated comprehensively, and it was introduced into therapeutics following some observations on man. Trichloroethylene appears to have a selective action on the sensory endings of the trigeminal nerve, whereby it affords relief in trigeminal neuralgia, but it is not clear that the action even of therapeutic doses is limited to these endings, and different individuals seem to show rather wide differences in susceptibility to this action; hence the dose necessary to afford relief varies correspondingly. Therapeutic doses sometimes cause transitory giddiness, with lassitude, distress, palpitation and nausea. Large doses cause narcosis, and excessive doses cause death. There was no perceptible injury to the lungs, heart or liver after narcosis repeated several times in the dog, but there was slight hyperemia of the gastric mucous membrane and marked reddening of the duodenum. The liquid is irritant; hence it should not be allowed to come in contact with the nose when the vapor is inhaled.

Dosage.—Fifteen minims by inhalation, to be repeated after a few minutes if necessary; but it appears probable that not more than 60 minims should be inhaled within twenty-four hours when it is used for any considerable period of time.

Trichloroethylene occurs as a clear, colorless, mobile and volatile liquid, possessing an odor similar to that of chloroform. It is miscible with ether and very soluble in alcohol; it is practically insoluble in water. The specific gravity is from 1.458 to 1.460 at 25 C. The refractive index is from 1.4770 to 1.4780 at 20 C.

Transfer 25 cc. of trichloroethylene to a distilling flask. Determine the distillation range according to Method I of U. S. Pharmacopeia X. Ninety-five per cent distils over at from 86 to 88 C. (corrected) at 760 mm. The refractive index of the distillate is the same as that of the material before distillation.

Transfer 5 cc. of trichloroethylene to a glass stoppered cylinder, add 5 cc. bromine water and shake the mixture vigorously at intervals of fifteen minutes: at the end of an hour a white turbid solution forms in the lower layer. Agitate gently 5 cc. of trichloroethylene with 2 cc. of silver ammonium nitrate solution in a narrow glass stoppered cylinder of from 10 to 15 cc. capacity: no turbidity is observed in either layer at the end of ten minutes (*acetylene*).

Agitate 20 cc. of trichloroethylene with a 50 cc. portion of water and repeat, using a 25 cc. portion of water; transfer the combined aqueous layer to a flask and add to the aqueous solution two drops of methyl red indicator solution: if the color of the solution is yellow, not more than 0.1 cc. of tenth normal hydrochloric acid is required to assume a pink color; if the color of the solution is pink, not more than 0.1 cc. of tenth normal sodium hydroxide is required to assume a yellow color.

Agitate 10 cc. of trichloroethylene with 25 cc. of water and allow the liquid to separate completely. Separate 10 cc. portions of the aqueous layer are affected as follows: No turbidity is noted five minutes after the addition of 0.1 cc. of nitric acid and 0.1 cc. of silver nitrate solution (*chlorides*); no blue color is observed after the addition of 0.1 cc. of potassium iodide test solution and 0.1 cc. of starch test solution (*readily oxidizing substances such as free chlorine*).

Add 0.1 cc. of alcohol to 5 cc. of trichloroethylene: a turbid solution is formed (*distinction from chloroform*).

Evaporate 25 cc. of trichloroethylene in a platinum or porcelain dish on a steam bath and dry to constant weight at 100 C.: No weighable residue is obtained.

Trichlorethylene-Calco.—A brand of trichloroethylene-N. N. R.

Manufactured by Calco Chemical Co., Inc., Bound Brook, N. J. No U. S. patent or trademark.

Tubes Trichlorethylene-Calco, 1 cc.

REPORTS OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT.

W. A. PUCKNER, Secretary

FERRO-COPRAL TABLETS NOT ACCEPTABLE FOR N. N. R.

Ferro-Copral Tablets, proposed for use "whenever iron is to be used in the treatment of anemia," were presented for the Council's consideration by Brewer & Co., Inc. Each tablet is stated to contain: saccharated ferric oxide-N. F., 1 grain; manganese citrate, 10 grains; copper proteinate, one-fourth grain; cocoa and sugar q. s., 16 grains. The copper proteinate is stated to be prepared by interaction of egg albumin and copper citrate and is stated to contain from 4.6 to 4.7 per cent of copper (Cu).

Brewer & Company, Inc., submit no evidence of clinical trials carried out with their product. In the submitted advertising the firm emphasizes anything that favors the use of iron, copper and manganese, citing evidence dealing with animal experiments and some cases of clinical trials with copper and iron which do not constitute acceptable evidence for the value of the administration of copper and iron or of copper, iron and manganese. While reports of experiments have been published indicating the value of copper when added to a copper free diet, these do not prove that it has any value when added to ordinary diets that already contain copper. The latter is indeed improbable since it is necessary to take extreme precautions to exclude copper from foods in order to demonstrate that its addition has any effect. The evidence cited by the firm does not constitute conclusive proof of the value of such a product as Ferro-Copral Tablets containing iron, copper and manganese, and the implied claim that this combination is more efficacious than iron alone must be held an unwarranted therapeutic claim until positive clinical evidence for the value of the mixture over simple iron preparations becomes available.

Because of lack of originality, a proprietary name cannot be recognized for a mixture of saccharated ferric oxide, manganese citrate, and copper proteinate; the name "Ferro-Copral" is therefore objectionable.

The Council declared Ferro-Copral Tablets unacceptable for New and Nonofficial Remedies because it is marketed under a nondescriptive proprietary name and because the claims made for it are unwarranted.

Committee on Foods

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION, AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.

RAYMOND HERTWIG, Secretary.

CLOVERDALE MINERAL WATER (CARBONATED)

Manufacturer. — Cloverdale Spring Company, Newville, Cumberland County, Pa., and Baltimore, Maryland.

Description.—A bottled highly carbonated spring water of very low mineral content; free of pathogenic micro-organisms.

Manufacture.—The water is pumped from Cloverdale Springs through a wrought iron pipe line to the bottling plant and discharged into a glass lined tank, from which it is run through three different filters: a bed of fine sand, artificial stone, and five white filter papers. The sand filter is treated with chlorine solution each week and is inspected several times a month to assure that it is in good condition; if not, the sand is removed, washed, treated and replaced. The stone filter is treated with chlorine solution at least once a week. The filter papers are changed every day. The paper filters act as a check on the other filters and come off clean each day. The filtered water is refrigerated over block tin or german silver coils to 1 C., is carbonated to contain 4.7 volumes of carbon dioxide, and is delivered to the filling machine through a pure block tin pipe.

The bottles used are processed for twenty minutes in a 5 per cent solution of caustic soda at 82 C., drained, rinsed with pure water, drained, and immediately automatically filled and capped without contact with human hands.

Analysis (submitted by manufacturer).—

(Analysis of uncarbonated water)

	parts per million
Phosphate (PO_4)	trace
Metaborate (BO_2)	0.0
Arsenate acid (AsO_4)	0.0
Silica (SiO_2)	14.0
Sulphate (SO_4)	22.0
Carbonate (CO_3)	0.0
Bicarbonate (HCO_3)	99.0
Nitrate (NO_3)	trace
Nitrite (NO_2)	0.0
Chloride (Cl)	1.0
Bromide (Br)	0.0
Iodide (I)	0.0
Iron (Fe)	4.0
Manganese (Mn)	trace
Calcium (Ca)	29.0
Magnesium (Mg)	7.0
Potassium (K)	2.0
Sodium (Na)	trace
Ammonium (NH_4)	0.1
Oxygen (Calculated) (O)	0.2
(Sanitary analysis)	
Ammonia nitrogen	0.15
Albuminoid nitrogen	0.10
Nitrite nitrogen	0.002
Nitrate nitrogen	0.000
Oxygen consumed	2.0

Micro-Organisms.—

Colonies per cc. (37 C., 96 hours)	10
Colonies per cc. (25 C., 96 hours)	15
Gas producers (5 cc.)	0
B. coli-communis	absent
Streptococci	absent

Claims of Manufacturer.—A pure highly carbonated spring water of a low mineral content.

DEBUS SLICED BREAD AND DEBUS QUALITY BREAD

Manufacturer.—Debus Baking Corporation, Hastings, Neb.

Description.—A white bread made by the sponge dough method.

Manufacture.—The sponge dough ingredients, patent flour of Northwest wheat, water, salt, sucrose, yeast and a yeast food containing calcium sulphate, ammonium, chloride, sodium chloride and potassium bromate, are mixed in a high speed mixer. The sponge dough is fermented for from four to five hours, after which are added flour, water, salt, sucrose, lard, malt syrup, and sweetened condensed skim milk to make the completed dough, which is cut into pieces of desired weight. The pieces are fermented for a short time, molded into loaf form, panned, further fermented, baked for from thirty to thirty-five minutes, cooled, and wrapped in wax-paper.

The factory, equipment and storage rooms are kept in strictly sanitary condition.

Analysis (submitted by manufacturer).—

	per cent
Moisture (entire loaf)	34.7
Ash	0.9
Fat (direct ether extraction method)	1.1
Protein (N × 6.25)	9.1
Crude fiber	0.2
Carbohydrates other than crude fiber (by difference)	54.0

Calories.—2.6 per gram; 74 per ounce.

Claims of Manufacturer.—A bread of good quality.

BANNER BLUE CORN SYRUP WITH CANE FLAVOR

Packer.—D. B. Scully Syrup Company, Chicago.

Description.—A table syrup; corn syrup flavored with refiners' syrup.

Manufacture.—The corn syrup ingredient is manufactured from a purified corn starch. Corn is soaked in warm water containing 0.2 per cent sulphur dioxide until softened to enable the separation of the germ, hull, gluten and starch. The starch is repeatedly washed until almost completely free from the other materials.

The purified starch in 0.2 per cent hydrochloric acid suspension is cooked under pressure at about 140 C. until the starch has been sufficiently hydrolyzed to produce 43 per cent reducing sugars as dextrose on the basis of the solids content of the final product. The mixture is almost completely neutralized with sodium carbonate, which throws out of solution the protein and other nonsugar constituents. The hot sugar liquor is filtered through cloth filter presses, concentrated, and filtered through bone-black, yielding a water clear solution which is concentrated in "vacuum" pans to the desired density.

The manufacturing process is under laboratory control. The finished syrup has a p_H of 5.0 for mixing syrups and 5.5 for confection syrups. The ash consists essentially of sodium chloride.

A representative analysis of the corn syrup follows:

	per cent
Moisture	19.5
Ash	0.3
Protein (N × 6.25)	0.03
Reducing sugars as dextrose	34.6
Dextrins (by difference)	45.6
Sulphur dioxide	0.002
p_H	5.0

The refiners' syrup ingredient conforms to the United States Department of Agriculture Standard for that product.

The corn syrup and a relatively smaller quantity of refiners' syrup are heated to 80 C. and mixed together in a tank, which acts as a reservoir to the filling machines for packing the syrup in air tight tins.

Analysis (submitted by manufacturer).—

	per cent
Moisture	23.0
Ash	0.7
Fat (ether extract)	0.0
Protein (N × 6.25)	0.2
Reducing sugars, as dextrose	31.0–41.0
Reducing sugars, as dextrose after invertase inversion	40.0–50.0
Sucrose (estimated from reducing sugars)	8.0–11.0
Dextrins (by difference)	37.1–24.1
Sulphur dioxide	0.001

No methods are available for accurately determining the composition of syrups of this nature; therefore the foregoing analysis is roughly approximate.

Calories.—3.1 per gram; 88 per ounce.

Claims of Manufacturer.—A syrup for cooking, baking and table use. It is suitable as a carbohydrate supplement for milk modification for infant feeding.

HYGEIA PURE STRAINED MIXED VEGETABLES WITH RICE AND BEEF EXTRACT

Contains Vitamin D

Added Irradiated Ergosterol

Manufacturer.—Snider Packing Corporation, Rochester, N. Y.

Distributor.—Hygeia Nursing Bottle Company, Buffalo, N. Y.

Description.—A mixture of strained potatoes, carrots, celery and rice with beef extract prepared under conditions which largely retain the natural mineral and vitamin content; with added vitamin D (irradiated ergosterol), 60 D units per fluidounce; packed in glass jars. The D units are those defined by the Council on Pharmacy and Chemistry of the American Medical Association (New and Nonofficial Remedies, 1931, p. 414). One fluidounce is equivalent in vitamin D to the D content of one teaspoonful of cod liver oil. No sugar or seasoning is added.

Manufacture.—The potatoes are put through an onion peeler to remove the outer skin, are cleaned, and the eyes are cut out. The celery is cleaned and scrubbed by hand; the root, butt end and leaves are cut off and the stalks separated in order that each stalk may be washed separately and scrubbed. A definite quantity of water plus the ground potatoes, carrots and celery are placed in a tin lined steam jacketed kettle and heated to from 71 to 76 C. After fifteen minutes the beef extract is added. The batch is cooked for a definite period, when the boiled rice is added, after which the entire batch is cooked for five minutes.

The cooked vegetables are then passed through a puréeing device similar to that used for peas. All subsequent steps are similar to those described for the preparation of the Strained Peas (THE JOURNAL, Feb. 13, 1932, p. 555).

Irradiated ergosterol is incorporated in the product, as described for the Strained Peas.

Analysis (submitted by manufacturer).—

Specific gravity 20 C./20 C. 1.03

	per cent
Moisture	92.0
Total solids	8.0
Ash	0.5
Fat (ether extract)	0.1
Protein (N × 6.25)	1.0
Starch (acid hydrolysis method)	3.3
Crude fiber	0.4
Carbohydrates other than crude fiber (by difference)	6.0
Calcium (Ca)	0.02
Iron (Fe)	0.001
Phosphorus (P)	0.01

Calories.—0.3 per gram; 8 per ounce.

Vitamins and Claims of Manufacturer.—See these sections for Strained Peas.

CHECK BREAD

(Sliced and Unsliced)

Manufacturer.—Banner Baking Company, Birmingham, Ala.

Description.—A white bread made by the sponge dough method.

Manufacture.—The sponge dough ingredients, "short patent" flour from Southwest wheat, water, yeast and a yeast food containing ammonium chloride, calcium sulphate, sodium chloride and potassium persulphate, are mixed in a high speed mixer. The sponge dough is fermented for from four to five hours, after which are added flour, water, salt, sucrose, lard and powdered skimmed milk to make the completed dough, which is cut into pieces of desired weight. The pieces are fermented for a short time, molded into loaf form, panned, fermented, baked for from thirty to thirty-five minutes, cooled, and wrapped in wax-paper.

The factory, equipment and storage rooms for the materials used are kept in strictly sanitary condition.

Analysis (submitted by manufacturer).—

	per cent
Moisture (entire loaf)	37.2
Ash	0.9
Fat (direct ether extraction method)	1.9
Protein (N × 6.25)	10.0
Crude fiber	0.2
Carbohydrates other than crude fiber (by difference)	49.8

Calories.—2.6 per gram; 74 per ounce.

Claims of Manufacturer.—A bread of good quality.

THE JOURNAL OF THE
AMERICAN MEDICAL ASSOCIATION

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SATURDAY, MARCH 5, 1932

DUODENAL ULCERS AFTER LOSS OF PANCREATIC JUICE

While, *a priori,* the total loss of any one of the digestive fluids should not prevent entirely the conversion of the foodstuffs to assimilable forms, the chemical characteristics of certain of these secretions, apart from the content of appropriate hydrolytic enzymes, are such that total loss is usually followed by grave consequences. McCaughan[1] has recently discussed the factors involved in the death resulting from complete drainage of pancreatic juice to the outside in experimental animals. It appears that, save for the terminal increase in urea of the blood, there is little demonstrable alteration in the blood, on chemical examination. The loss of water in the daily secretion of pancreatic juice, which amounts to from 300 to 450 cc., was thought to be an important factor in the fatal outcome. Pancreatic juice given by mouth in these studies had a beneficial effect, whereas intravenous injection of the juice or the dialysate from it proved ineffective. Other studies on the same theme but from a somewhat different point of view have lately been reported by Elman and Hartmann.[2] In this investigation an effort was made to determine the etiology of the peptic ulcers, which almost invariably occurred proximally to the pylorus in the duodenum after the total loss of pancreatic juice for a comparatively short time.

The animals were prepared for the experiment by ligation and subsequent intubation of the pancreatic duct. The external secretion of the entire gland was obtained in this way under sterile conditions and collected for the entire twenty-four hours. To avoid the fatal outcome of this procedure, intraperitoneal injections of 500 cc. of a solution containing sodium chloride, potassium chloride, calcium chloride, sodium lactate and dextrose were given each day. The animals were fed a mixed diet and remained in good condition. After intervals of from thirteen to eighteen days had elapsed, duodenal ulcers were found at necropsy. They were generally round or oval, frequently showed bleeding, and although perforation did not occur there was no evidence of healing. Abnormalities were not found in the stomach, pancreas or elsewhere in the body.

The absence of definite chemical changes in the blood leads to the conclusion that the main factor concerned in the development of the duodenal ulcers is not a general metabolic one. It appears that after gastro-enterostomy the development of peptic ulcers is frequent on the distal side of the exit from the stomach, irrespective of the portion of the small intestine to which it is joined, provided the pancreatic juice is not permitted to enter the intestine. Under ordinary circumstances there is evidence that the neutralization of the acid chyme takes place on the proximal side of the pyloric sphincter as a result of the regurgitation of the alkaline pancreatic juice. According to Elman and Hartmann the duodenal ulcers, in their studies, represent a local tissue erosion brought about by the acid material from the stomach. Supporting evidence is at hand that partial pyloric occlusion is followed by high gastric acidity and ulcers in the gastric mucosa.

These conclusions naturally direct attention to the normal mechanism of the opening of the pyloric sphincter. The recent review by Murlin[3] summarizes the conflicting evidence bearing on this question and the consequent difficulty in formulating a sound hypothesis. The foregoing discussion provides important supplementary information on the normal functions of this pyloric structure. It indicates that the opening of the pyloric sphincter is significant not only in permitting the egress of material but also in allowing the neutralizing fluids from the intestine and pancreas to enter the stomach, thus guarding the functional and structural integrity of both stomach and duodenum.

THE DISCOVERY OF THE TUBERCLE BACILLUS, 1882

The science of bacteriology is one of the youngest of the biologic disciplines on which the development of modern medicine rests. Bacteria were probably seen by the pioneer Leeuwenhoek before the end of the seventeenth century. Generations passed, however, before the beginnings of the remarkable progress that resulted in the formulation of the germ theory of disease. The doctrine of contagium vivum had, indeed, been proposed in earlier days; but it failed to take firm root and gradually disappeared from men's minds. There was some revival, after 1840, of the theory that contagious disease might be due to microscopic forms of life; but it remained for the great triumvirate—for the work of Pasteur, Koch and Lister—to build the firm foundation on which the present germ theory of disease rests.

March 24, the entire world of biologists and men of medicine will celebrate the fiftieth anniversary of a great event in the history of medicine—the discovery of the tubercle bacillus by Robert Koch in 1882. It formed the basis for an entirely new approach to the understanding of a disease that was not only baffling but also extremely devastating. The attack on a secret enemy or the defense against it is usually fraught with great difficulties. When its identity and location are ascertained, intelligent effort can supplant empiric undertakings in the plans for conquest. Important as the identification of the bacillus of tuberculosis is, this contribution is only one of many researches by Koch that attained the goal of success and have greatly promoted the development of medicine.

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[1] McCaughan, J. M.: Am. J. Physiol. 97: 459 (June) 1931.

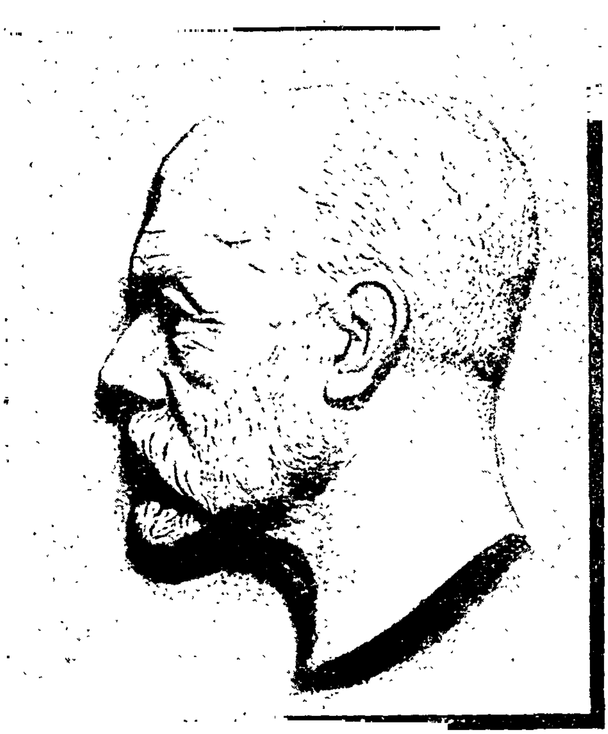
[2] Elman, Robert; and Hartmann, A. F.: Spontaneous Peptic Ulcers of Duodenum After Continued Loss of Total Pancreatic Juice, Arch. Surg. 23: 1030 (Dec.) 1931.

[3] Murlin, J. R.: J. Nutrition 2: 311 (Jan.) 1930.

In his volume on biology and its makers, Locy[1] has pointed out that Koch, with the rigorous scientific spirit for which he is noteworthy, established four necessary links in the chain of evidence to show that a particular organism is connected with a particular disease. These four postulates of Koch are, first, that a microscopic organism of a particular type should be found in great abundance in the blood and the tissue of the sick animal; second, that a pure culture should be made of the suspected organism; third, that this pure culture, when introduced into the body of another animal, should produce the disease; and, fourth, that in the blood and tissues of that animal there should be found quantities of the particular organism that is suspected of producing the disease. "Koch's postulates," establishing the pathogenic character of a given microorganism, were first outlined in the classic description of the finding of the tubercle bacillus.[2] Special methods of culture and staining were probably of help in the discovery. In Microbe Hunters, de Kruif,[3] in a chapter on Koch, pays his respects to

> the man who really *proved* that microbes are our most deadly enemies, who brought microbe hunting near to being a science, the man who is now the partly forgotten captain of an obscure heroic age.

Let us hope that before the centennial anniversary, in 1943, of the birth of this distinguished German savant, medicine, aided by his great discovery, will have secured a firm mastery over tuberculosis.



Robert Koch

NEW HAVEN'S PUBLIC HEALTH RECORD FOR 193

The medical profession is striving for the day when the well trained physician will enjoy fully the wholehearted and intelligent cooperation of the layman. Given such collaboration and the present achievements of the science of medicine, anxiety over the elimination of specific infectious diseases could probably be largely eliminated. In 1931, for the first time, New Haven was without a death from diphtheria and in this year there were only four cases of this disease, a new low record for this city of 162,670 inhabitants. Furthermore, this was the third year, in recent times, during which no death from scarlet fever has occurred. Not only were there forty-seven fewer cases of tuberculosis reported in 1931 than in the immediately preceding year, but the mortality rate was the lowest in history. Two epidemics were experienced, yet even in respect to these the death rates were unusually low; of 4,636 cases of measles only 2 were fatal, and there were 150 cases of poliomyelitis with 9 deaths, a rate much lower than that in the cities in the general vicinity of New Haven.

The record for health established in this community is important because of the methods whereby such distinction was attained. As with most noteworthy achievements, individual records of this sort represent the fruition of progressive improvement, not only national but world-wide. In regard to diphtheria, for instance, real progress in its eradication began with the establishment of the relationship between the diphtheria bacillus and the disease in 1884 by Löffler. There followed the demonstration of first the toxin, then later the antitoxin, and in 1910 Schick's studies, on which modern prophylaxis so largely rests. A general tendency to decrease in diphtheria has been noted. In New Haven the number of deaths per hundred thousand of population was 184 in 1877 and 130 in 1890; by 1910 it had fallen to 12.7. In 1920 there were 466 cases with 17 deaths, and in 1923 an active campaign was begun to root out this disease. The work was carried out for the most part in the schools and up to the middle of 1931 the toxin-antitoxin treatment had been administered to 35,496 children. Of these, 11,936 had received treatment previously as babies or preschool children. In addition, the Schick test showed that 13,739 individuals were already protected aganist diphtheria. Whereas for the ten years prior to the beginning of this work in 1923 the average number of cases was 313 a year with 20 deaths, the number of cases of diphtheria in 1930 was 14, with 1 adult death. The past year, with only 4 cases and no deaths, completes a remarkable record of preventive medicine on a large scale. The 49,235 children who have been treated not only were protected against the disease but have taken part in a public health demonstration of national importance.

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[1] Locy, W. A.: Biology and Its Makers, New York, Henry Holt & Co., 1933, pp. 300-301.

[2] Koch, Robert: Berl. klin. Wchnschr. **21**: 221, 1882.

[3] de Kruif, Paul: Microbe Hunters, New York, Harcourt, Brace & Co., 1926, p. 144.

Vital statistics similar to these are available for many cities in this and other countries. They are the occasion for a feeling of civic pride on the part of those who read them; they represent, to a relatively small group of workers, dear results obtained after many discouragements, especially during unfavorable times; they indicate to many citizens a new appreciation of the power of knowledge and the value of preventive medicine; finally, such data mean more effective cooperation with the physician on the part of the layman. Not the least value in an accomplishment of this kind is the incentive and example for similar attacks on other diseases.

Current Comment

WHAT IS BONE?

Every beginner in physiology knows that bone consists of water and about equal parts of organic and inorganic material. If he has had some chemical training he has learned to identify the organic basis of bone with the albuminoid collagen, the precursor of gelatin. He is surely aware, too, that bone is rich in the elements calcium and phosphorus. This mineralization of the osseous tissue serves at once to explain the rigidity of the structures that form the skeleton and thus determine to some extent the form of the body. The more detailed studies of recent years have demonstrated, however, that the inorganic make-up of bone is not adequately expressed by the assumption that it consists of calcium phosphate. The application of the newer methods of roentgen analysis, such as the chemist now applies to the study of crystals, indicates that bone has a crystalline structure which may be compared with that of the apatite minerals. According to Roseberry, Hastings and Morse[1] of the University of Chicago, the chemical composition of untreated bone is similar to that of the mineral dahlite. This has been verified by Bogert and Hastings[2] in the same laboratories. The chief inorganic constituent of bone is probably a crystalline salt, $CaCO_3.nCa_3(PO_4)_2$, n approximating the value 2 in untreated bone. This new information may serve to throw light on the factors governing the precipitation of calcium salts from body fluids not only in normal bone formation but in such pathologic deposits as calcified tissues, hardening of the arteries and gallstones. The bones are looked on today not only as structural parts of the body but also as storehouses of calcium. This element can easily be laid down in the skeleton and easily removed. The mineral ingredients are in a state of flux. Obviously the mobilization of this element from the skeletal units must be determined or modified to some extent by the nature of the inorganic sources in the bones. The newer knowledge also indicates that many tissues, but especially bone, contain an enzyme, phosphatase, that can liberate phosphate from hexose phosphate widely present in the body. It probably plays some part in bringing about a local increase in phosphate ions and thereby facilitating the deposition of calcium phosphate in growing bone. The story of the chemistry of bone is thus growing into a larger chapter of biochemistry.

THE BACTERIA OF FOOD POISONING

Reports of cases of food poisoning are interesting, especially if the allegedly causative organism has been isolated from the food, from the excreta of persons ill or, perhaps, more rarely, from both. Geiger[1] and his associates have recently reported three outbreaks, two of which occurred in hospitals. The organisms isolated were B. enteritidis, B. paratyphosus B (Aertrycke type) and B. paratyphosus A. The contaminated foods were incompletely cooked veal, rice pudding and an egg soufflé, respectively. It is particularly important to note the absence of infections, as would be indicated by prolonged fevers, in the outbreak apparently due to B. paratyphosus A, in which the food was contaminated by a carrier, the assistant chef of the hospital. That outbreaks of food poisoning may be caused by the paratyphoid-enteritidis group of organisms only has been long questioned by workers in this field. Seemingly, many organisms may be isolated that do not lend themselves to serologic classification with the well known members of the accepted groups. In fact, the isolation of organisms so general in nature as B. proteus and many others closely allied in type from food involved in outbreaks may lead public health officials astray in interpreting the causative factors. Furthermore, the involving of the cocci group, notably the staphylococcus, by Jordan[2] and his co-workers, may further confuse the situation. The evidence seems clear, however, that this organism, so universal and so closely associated with the human skin and therefore with the preparation of food, may be isolated and, in suitable medium, produce a poison that is a gastro-intestinal irritant in man. The significance of the staphylococcus and of other organisms that may be isolated from foods suspected of causing outbreaks may be accepted as sufficient. Presumably the clinical symptoms described as well as the incubation period of the intoxication from bacterially contaminated food are similar in all outbreaks, despite the specific organism responsible.

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[1] Roseberry, H. H.; Hastings, A. B., and Morse, J. K.: X-Ray Analysis of Bone and Teeth, J. Biol. Chem. **90**: 395 (Feb.) 1931.

[2] Bogert, L. J., and Hastings, A. B.: The Calcium Salts of Bone, J. Biol. Chem. **94**: 473 (Dec.) 1931.

[1] Geiger, J. C.; Nelson, Margaret; and Gray, J. P.: Three Outbreaks of Food Poisoning Apparently Due to B. Enteritidis, B. Paratyphosus B (Aertrycke Type) and B. Paratyphosus A, Respectively, Pub. Health Rep. **46**: 1565 (July 3) 1931.

[2] Jordan, E. O.: Staphylococcus Food Poisoning, J. A. M. A. **97**: 1704 (Dec. 5) 1931.

Association News

ABSTRACT OF MINUTES OF BOARD OF TRUSTEES HELD AT ASSOCIATION HEADQUARTERS, FEB. 18 AND 19, 1932

A meeting of the Board of Trustees was held at the Association headquarters, Feb. 18 and 19, 1932.

APPOINTMENTS OF REPRESENTATIVES

Dr. Dean Lewis, Baltimore, was appointed to serve as the Association's representative on the Committee on Autopsies, under the auspices of the American Hospital Association.

Dr. E. P. Sloan, Bloomington, Ill., was appointed to represent the Association at the second International Conference on Goiter, which will be held in Bern, Switzerland, in August, 1933.

THIRD INTERNATIONAL CONFERENCE ON GOITER TO BE INVITED TO THE UNITED STATES

It was decided to add the Association's invitation to the invitations of other national bodies in the hope that the third International Congress on Goiter may be held in the United States in 1937.

ELECTIONS

Nominations to fill vacancies on the editorial boards of the special journals, on councils and on committees were considered and the following appointments were made:

Drs. Isidore Friesner, Ludvig Hektoen, Frederick Tilney, Wallace I. Terry, George M. MacKee and Fritz Talbot were elected to succeed themselves on the editorial boards of the *Archives of Otolaryngology, Archives of Pathology, Archives of Neurology and Psychiatry, Archives of Surgery, Archives of Dermatology and Syphilology* and the *American Journal of Diseases of Children*, respectively.

Dr. J. D. Heard, Pittsburgh, was elected to succeed Dr. Joseph L. Miller on the editorial board of the *Archives of Internal Medicine.*

Dr. Sanford R. Gifford was named to succeed himself, and Dr. Walter R. Parker to succeed Dr. George S. Derby (deceased) on the editorial board of the *Archives of Ophthalmology.*

Dr. C. C. Bass was appointed to succeed himself on the Committee on Scientific Research.

Dr. Reid Hunt and Dr. W. W. Palmer were elected to succeed themselves, and Dr. Alfred F. Hess, New York, to succeed Dr. A. J. Carlson on the Council on Pharmacy and Chemistry.

Dr. Charles A. Doan, Columbus, Ohio, was appointed to succeed Dr. William F. Petersen on the Division of Medical Sciences, National Research Council.

RESIGNATION OF DR. FRANCIS CARTER WOOD FROM COUNCIL ON PHYSICAL THERAPY

The Board accepted with regret the resignation of Dr. Francis Carter Wood from the Council on Physical Therapy, the tendering of which was made necessary because of the burden that has been placed on his time by his duties as editor of the *American Journal of Cancer.*

BUREAU OF HEALTH AND PUBLIC INSTRUCTION

Dr. John M. Dodson, who has acted in the capacity of director of the Bureau of Health and Public Instruction over a period of years, was retired on account of ill health.

Dr. W. W. Bauer, who has recently been employed to act as assistant director of that bureau, was made director.

SURVEY OF HOSPITALS FOR THE CARE OF NERVOUS AND MENTAL PATIENTS

The Board approved the employment of a trained psychiatrist to analyze the information procured through the questionnaire sent out by the Committee on Mental Hygiene and through other sources, with a view to the preparation of a report and the adoption of certain standards.

TESTIMONY OF DR. BEVAN BEFORE SENATE COMMITTEE

The Board of Trustees approved the editorial in THE JOURNAL concerning the testimony of Dr. Arthur Dean Bevan before a Senate committee, and instructed the editor so to inform Dr. Bevan.

MISCELLANEOUS

Appropriations were made to carry on the work of the various councils and bureaus, as well as for the Committee on the Protection of Medical Research and for the committees on scientific and therapeutic research. Other more or less routine matters were given careful consideration.

THE NEW ORLEANS SESSION

Indications Point to Well Attended Meeting

Reports received from Dr. W. H. Seemann, general chairman of the Committee on Arrangements for the New Orleans Session of the American Medical Association, May 9 to 13, indicate a large attendance. Advance hotel reservations are being received in large numbers by the New Orleans Hotels Committee, of which Dr. Emmett L. Irwin is chairman.

Dr. Irwin reports that the Hotel Roosevelt is booked to capacity with advance reservations and has been obliged to turn a number of requests for rooms over to his committee for placement with other New Orleans hotels. A large number of reservations have already been placed with the St. Charles and Monteleone, and scattering reservations have been handled through all the larger hotels of New Orleans.

The New Orleans committee assures adequate housing facilities through its large number of fine hotels. The convention city's hotel committee urges, however, that for choice of accommodations members should mail requests for reservations without delay. A list of hotels with rates appeared on advertising page 41 of THE JOURNAL, February 6. Hotel reservations should be mailed to Dr. Emmett L. Irwin, Chairman, Hotels Committee, Post Office Box 1460, New Orleans, La.

Women's Auxiliary Planning Entertainments

Mrs. Walter J. Freeman, president of the Women's Auxiliary of the American Medical Association, visited New Orleans, February 25 and 26, and met with the local committee, of which Mrs. Joseph Hume is chairman. The Hotel Bienville has been designated as headquarters for the Women's Auxiliary, and plans are materializing for what promises to be one of the most enjoyable entertainment programs ever arranged for the Women's Auxiliary. Mrs. Hume points out that New Orleans holds so much of interest, particularly to womankind, that the only difficulty existing in planning the entertainment program is to find time to include opportunities for observing the many historical and romantic points of interest, beautiful gardens of semitropical and native flowers, interesting old patios, and the other innumerable attractions of the South's metropolis.

MEDICAL BROADCAST FOR THE WEEK

American Medical Association Health Talks

The American Medical Association broadcasts on Monday from 12 noon to 12:05 p. m. over Station WBBM (770 kilocycles, or 389.4 meters) and other stations of the Columbia Broadcasting System, and on Wednesday and Friday from 2:25 to 2:30 p. m. over Station WBBM, Chicago.

The program for the week is as follows:

March 7. Principal Causes of Illness in Typical American Community.
March 9. Common Sense and the Open Window.
March 11. Why We Run Away.

There is also a fifteen minute health talk sponsored by the Association on Saturday from 11:15 to 11:30 a. m. over Station WBBM, Chicago.

The program for the week is as follows:

March 12. The Sign on Your House.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

CALIFORNIA

Diploma and Certificate Missing.—Dr. Paul P. E. Michael, a graduate of McGill University, May 30, 1928, licensed as a physician and surgeon in California, Aug. 30, 1928, reported, February 2, that his California certificate (number A-04771) was recently lost along with other things when a bag of his disappeared. A diploma from Northwestern University Medical School, 1904, belonging to Dr. Claire Willard Fulton, Los Angeles, was stolen from his office, February 7.

University News.—Dr. John C. Meakins, professor of medicine and director, department of medicine, McGill University Faculty of Medicine, will be at the University of California Medical School as university lecturer from March 11 to April 2. The university lectureship was established at the medical school in 1930. Dr. Lewellys F. Barker, Baltimore, was the first lecturer, and Dr. Herman M. Adler, the second. The physician serving as lecturer conducts clinics and demonstrations at the medical school during his month's incumbency.

COLORADO

Licenses Renewed.—At a recent meeting of the state board of medical examiners, the license of Dr. Silvius S. Craig, Wilmar, Calif., was renewed. Dr. Craig's license had been revoked, July 1, 1930, for unprofessional and dishonorable conduct in advertising. The license of Dr. Toros Sarkisian, Denver, was renewed at a meeting of the board, January 5. Dr. Sarkisian's license had been revoked in 1923 for performing an abortion.

White House Conference.—A continuation committee, appointed at the last session of the Colorado White House Conference on Child Health and Protection, Denver, January 14-16, is now endeavoring to discover ways by which the findings may be used to guide future activities in the different counties of the state. F. J. Kelly, Ph.D., Washington, D. C., representing the national conference, and Dr. Estella F. Warner, U. S. Public Health Service, were the guest speakers. Dr. Franklin P. Gengenbach, Denver, was director of the conference. The chairmen of the four divisional sessions were: medical service, Dr. Maurice H. Rees, Denver, president, Colorado State Medical Society; public health service and administration, Dr. Samuel R. McKelvey, Denver, secretary, state board of health; education and training, Mrs. Inez Johnson Lewis, state superintendent of public instruction; the handicapped, Miss Eunice Robinson, president, state conference of social work.

DISTRICT OF COLUMBIA

Cancer Clinic.—Dr. Joseph C. Bloodgood and his associates at Johns Hopkins University School of Medicine and Johns Hopkins Hospital, Baltimore, conducted a bone and cancer clinic in the department of pathology, Howard University School of Medicine, February 19-20.

Personal.—At the bicentennial convocation of George Washington University, February 22, the honorary degree of doctor of laws was conferred on Dr. Luther Halsey Reichelderfer, and the degree of doctor of science on Dr. Sterling Ruffin. Both physicians, who are residents of Washington, are alumni of George Washington University School of Medicine.

Dr. Allemann Retires.—Dr. Albert Allemann retired at the end of February from active duty in the library of the surgeon general's office, where he has been since 1900. Dr. Allemann was born in Soleure, Switzerland, in 1860, and came to the United States in 1884. He entered the library in 1900 and began the study of medicine, graduating from George Washington University School of Medicine in 1904. Dr. Allemann was for fifteen years principal assistant librarian and editor of the *Index Catalogue*. At one time he was assistant editor of the *Index Medicus* and later was on the staff of the *Quarterly Cumulative Index Medicus*. Dr. Allemann will be remembered for his editing on the *Index Catalogue*, including four volumes of the second and all of the third series. Testimonials of the esteem and affection of his fellow workers at the library were presented to Dr. Allemann at the time of his retirement.

Annual Banquet of Society.—Dr. E. Starr Judd, Rochester, Minn., President of the American Medical Association, was the guest speaker at the annual reunion of the George Washington University Medical Society, February 20. His subject was "Research and Practical Studies of Diseases of the Biliary Tract." Among the other guests of honor were Cloyd Heck Marvin, LL.D., president of George Washington University; Dr. Earl Baldwin McKinley, dean of George Washington University School of Medicine; Dr. Alan M. Chesney, dean, Johns Hopkins University School of Medicine; Dr. William Gerry Morgan, dean, Georgetown University Medical School; Surg. Gen. Robert W. Patterson, U. S. Army; Surg. Gen. Charles E. Riggs, U. S. Navy; Surg. Gen. Hugh S. Cumming, U. S. Public Health Service; Dr. Luther H. Reichelderfer, chairman, board of commissioners of the District of Columbia, and Dr. Joel T. Boone, physician to President Hoover. Dr. Frederick A. Reuter, president of the society, presided.

Society News.—The International Medical Club gave a dinner, February 4, in honor of Dr. Georges Portmann, professor of laryngology, University of Bordeaux. At a business meeting later, Dr. Adolphus B. Bennett was elected president, and Dr. Panigiotes S Constantinople, secretary.——The Washington Society of Pathologists furnished the program for the meeting of the Medical Society of the District of Columbia, January 27. Major George R. Callender, Baltimore, spoke on "Prognosis of Melanoma of the Eye"; Dr. Wallace M. Yater, Major Paul E. McNabb and Dr. Edmund Horgan, "Clinicopathologic Types of Hemochromatosis," and Dr. Walter Freeman, "Cerebral Metastases in Primary Carcinoma of the Lung."——Dr. Francis R. Hagner addressed the Society of Hospital Interns, January 13, on "The Use and Abuse of the Catheter."——The Hippocrates-Galen Medical Society furnished the program for the February 17 meeting of the Medical Society of the District of Columbia; among others, Dr. George B. Trible spoke on "Present Status of Sims Surgery."

ILLINOIS

Society News.—Dr. Francis Eugene Senear, Chicago, addressed the Will-Grundy County Medical Society, March 2, on the present status of antisyphilitic treatment.——The Aurora Medical Society was addressed, March 3, by Dr. Lowell D. Snorf, Chicago, on "Complications of Peptic Ulcer."

Chicago

Dr. Campbell to Give Gehrmann Lectures.—Dr. Charles Macfie Campbell, professor of psychiatry, Harvard University Medical School, will deliver the Gehrmann Lectures at the University of Illinois College of Medicine, March 15-17, in room 221 of the new building at 1853 Polk Street. The lectures will be devoted to mental hygiene. Dr. Campbell will speak at 4 o'clock, March 15, on "Schizophrenic Disorders"; March 16, 1 o'clock, "Preoccupation and Environmental Problems of the Patient," and, March 17, 4 o'clock, "Personal and Environmental Problems and Resources Available for Treatment."

Personal.—Mr. Paul H. Fesler has been appointed superintendent of Wesley Memorial Hospital, effective May 1, to succeed the late Mr. E. S. Gilmore. Mr. Fesler has been superintendent of the University of Minnesota Hospitals, Minneapolis, since Jan. 17, 1927. For twelve years previous to that time, he had served in a similar capacity at the University of Oklahoma. Mr. Fesler, for a number of years, was secretary of the Oklahoma Hospital Association, and at one time its president. He also served as president of the Minnesota Hospital Association. He is now president of the American Hospital Association.——Dr. James W. Hall was appointed criminologist on the coroner's staff, December 17.

New Regulations at Medical School.—Graduation in medicine eight years after entering college, instead of the present nine years, will be possible at the School of Medicine of the Division of Biological Sciences, University of Chicago, with the beginning of the spring quarter, according to regulations approved at a meeting of the faculty of the division, February 18. The intern year will be included in the eight years. Abolishment of the bachelor of science degree as an admission requirement was also approved. For admission to the medical school, adequate training in physics, chemistry, biology and mathematics is recommended, in addition to a reading knowledge of German or French. After 1933, a reading knowledge of German will be required. It is expected that this preparation will ordinarily be completed in the first year in the division. Selection by the committee on admissions will be based on character, aptitude and scholarship. Evidence of interest and ability in research will commend applicants to this committee. Requirements for the granting of the degree of doctor of medicine, as approved at this meeting, provide that group examinations be abandoned and general departmental examinations be substituted for them. The student will be required to pass a general departmental examination in each department during the quarter in which he completes his work in that department. The requirement of a thesis for graduation is abolished. The degree of doctor of medicine with honors in one department will be given when, in addition to meeting with distinction the requirements for the degree of doctor of medicine, the student has also completed a satisfactory thesis constituting a contribution to knowledge. This degree will be awarded on recommendation of the department and approval of the faculty of the division. The official name of the medical school will be the School of Medicine of the Division of the Biological Sciences.

Society News.—The Chicago Society of Industrial Medicine and Surgery held a joint meeting with the Chicago Urological Society, March 2; Drs. Kellogg Speed and Edward William White spoke on "Pelvic Fractures" and "A Study of Certain Urological Complications Associated with Pelvic Fractures," respectively.——Dr. Arthur Weil addressed the Chicago Society of Internal Medicine, February 22, on "Presence of Myelolytic Substances in the Urine of Multiple Sclerosis Patients" and Dr. Oswald H. Robertson and Helen M. Wallace, "Distribution of Pneumococci in Lungs During Lobar Pneumonia."——The Chicago Pediatric Society was addressed, February 15, among others, by Drs. Benjamin Gasul and Philip Rosenblum on "An Attempt to Use the Spinal Fluid as a Biologic Test for the Diagnosis of Tuberculous Meningitis."——Dr. John A. Larson, among others, spoke before the Chicago Neurological Society, February 18, on "Postural Precedence in Postencephalitis."——The Society of Medical History of Chicago was addressed, March 1, by Dr. Arno B. Luckhardt on "History of Hemostasis," and Dr. P. Arthur Delaney, "Michael Servetus and the Discovery of the Pulmonary Circulation." There was also an exhibition of old medical books in Billings Library, University of Chicago.——Dr. Stanton K. Livingston, Hines, Ill., among others, addressed the Chicago Orthopedic Club, February 12, on "Maggot Treatment of Chronic Osteomyelitis."——Dr. Tadeus Dundulis addressed the Lithuanian Medical Association of America, February 23, on "Elbow Fractures Treated in Extended Position."——A symposium on mucin therapy will comprise the program of the Chicago Medical Society, February 16; members of the faculty of Northwestern University Medical School will conduct the program.——Dr. Austin A. Hayden, among others, will address the Chicago Laryngological and Otological Society, March 7, on "Medical Advertising."——The Chicago Surgical Society was addressed, March 4, among others, by Drs. Loyal Davis and Hale A. Haven on "Surgical Treatment of Trigeminal Neuralgia," and Charles B. Huggins, "Further Experiments on Bone Formation."——Dr. Edward H. Cary, Dallas, Texas, President-Elect, American Medical Association, addressed the students and faculty of the University of Illinois College of Medicine, February 26, on "Medical Education, Past and Present."

INDIANA

New Biologic Collection.—The discovery and collection of nearly 700 biologic species of insect life new to science were announced on the return to Indiana University, Bloomington, of Alfred C. Kinsey of the zoology department from a 10,000 mile scientific trip through Mexico. The Kinsey expedition collected more than 100,000 individual specimens.

University News.—The department of medicine of Indiana University School of Medicine, Indianapolis, has been divided into two sections to be known as the department of cardiology and the department of internal medicine, according to the press, January 30. This reorganization was necessary to take care of steadily increasing work, it was said. Dr. George S. Bond will head the department of cardiology, and Dr. James O. Ritchey the department of internal medicine. Both of these physicians were on the staff of the former department of medicine.

Society News.—The Marshall County Medical Society was addressed at Plymouth, February 3, on "Treatment of Sinusitis."——Dr. Foster J. Hudson, Indianapolis, addressed the Hancock County Medical Society, February 12, on "Toxemias of Pregnancy: Threatened, Incomplete and Inevitable Abortion."——At the meeting of the Madison County Medical Society in Anderson, February 15, Dr. Heyworth N. Sanford, Chicago, spoke on "Convulsions in Infancy" with especial reference to treatment.——Dr. Edgar F. Kiser, Indianapolis, addressed the Delaware-Blackford County Medical Society, February 16, on "The History of Medicine."——Dr. Louis H. Clerf, Philadelphia, addressed the Tippecanoe County Medical Society, February 11, on "Bronchoscopic Aid in Diagnosis and Treatment."——The Floyd County Medical Society was addressed, February 12, by Dr. Elihu P. Easley, New Albany, on "Relation of Doctors to Each Other and to the Public."——Dr. Charles O. McCormick addressed the Indianapolis Medical Society, February 23, on "Fewer and Better Babies (From the Viewpoint of Eugenic Sterilization)," and Dr. Delbert O. Kearby, "Bronchoscopy as an Aid to Diagnosis."

KENTUCKY

Bills Introduced.—S. 350, to amend the nursing practice act, proposes to require all nursing of the sick to be done by a registered or trained nurse, except (1) gratuitous nursing "by a friend or member of the family"; (*2*) "strictly charitable nursing by established hospitals"; (3) services of "nurses who do not assume to be trained or registered nurses, who shall have had ten years practical nursing of the sick at the time of the passage of this act." Further, the bill proposes to make it "unlawful for any doctor or hospital . . . to employ or use any nurse unless that nurse be a registered or trained nurse." S. 353 proposes to create a board of barber and beautician examiners and to regulate the practice of barbering and beauty culture. S. 360 proposes to make it unlawful for any person to possess, sell, manufacture or distribute in any other than its natural state, any marihuana, Indian hemp or hasheesh, "except under the direction and in the course of treatment by a licensed physician." S. 374 and H. 724 propose to levy on licensed physicians a tax of one third of their fees for issuing prescriptions for intoxicating liquors or for narcotic drugs. S. 395 and H. 635, to amend the workmen's compensation act, propose to make an employer liable without any limit, other than the discretion of the compensation board, for such medical, nursing and hospital services as are necessary during the first ninety days after an injury to an employee. H. 521, to amend the laws defining the duties of coroners, proposes (1) to give coroners jurisdiction in cases of deaths occurring without medical attention; (*2*) to make it the duty of any person discovering or having in his possession the body of a person violently killed or dying without the attendance of a licensed physician to notify the coroner of the facts, and (3) apparently, to permit coroners to hold inquests without juries. H. 617, to amend the workmen's compensation act, proposes (1) to make the employer liable without any limit as to amount or time for such medical and hospital services as are necessary to treat an injured employee, and (2) to permit an injured employee to select his own physician.

MARYLAND

Child Health Activities.—About 25 per cent more children were examined last year at child health conferences in the counties throughout Maryland than in 1930. Dr. James H. Mason Knox, Jr., chief, bureau of child hygiene, state department of health, announced that a total of 8,423 children under school age, representing more than 5,000 families, were examined in 1931, as compared with 6,169 in the preceding year. Of the 8,423 children, 3,797 were under 5 years old, and the remainder from 5 to 7 years old. Including the stops made by the "healthmobile" in a tour of the Eastern Shore and southern Maryland last year, 388 different places were visited by health officers and 545 health conferences were held.

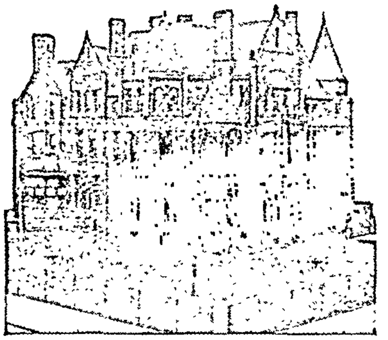
MICHIGAN

Society Opposes "Sheppard-Townerism."—The council of the Wayne County Medical Society recently adopted a resolution opposing further "Sheppard-Townerism." This action followed the recent introduction in Congress of two bills (H. R. 7525, S. 572) intended to revive "Sheppard-Townerism." These bills propose to appropriate money from federal taxes, raised largely from city populations, and apply it for rural hygiene generally and maternal and infant hygiene more particularly, in the rural districts of the various states.

Society News.—A symposium on tuberculosis in pregnancy comprised the program of a joint meeting of the Wayne County Medical Society and the Detroit Obstetrical and Gynecological Society, February 23; the speakers were Drs. Richard H. Morgan, William A. Hudson, Plinn F. Morse and Harold Henderson. The county society held "open house," February 22, in honor of Washington's anniversary.——Dr. John J. Corbett, Detroit, addressed the Macomb County Medical Society, January 4, on "Treatment of Hemorrhoids."——Drs. Wadsworth Warren, Jr., and Arthur E. Hammond, Detroit, addressed the Oakland County Medical Society, February 18, at Pontiac, on bronchoscopy. A film on "Vaginal Hysterectomy" was also shown.

Foundation Aids Study of Morphine.—The Rockefeller Foundation has provided for an extension of an investigation of the chemistry and pharmacology of morphine, with the object of removing the dangerous properties of the drug. This study has been carried on at the Universities of Michigan and Virginia, under the auspices of the National Research Council through its drug addiction committee. The Ann Arbor *Tribune* states that the results already obtained have been so promising that the foundation has granted a sum that will not only provide for the extension of the work to Jan. 1, 1936, but also allow some increase in the yearly budget. Drs. Charles W. Edmunds and Nathan B. Eddy are in immediate charge of the work at the University of Michigan.

Wayne County Society's New Home Dedicated.—The new headquarters of the Wayne County Medical Society, Detroit, was dedicated with a housewarming, January 29. More than 1,200 of the approximately 1,600 members of the society were present. The new home of the society contains fifty rooms. In 1893, a year of depression, the society's bulletin states, the expenditures for the building were said to be $400,000 for the house, $250,000 for decorations and glazing, and $300,000 for art treasures. The house, which was built by Mr. David Whitney, took four years to erect. The mansion is famous for its carved woodwork and parquet floors, its stained glass windows and its twenty fireplaces, each of different marble or tinted brick. The first floor of the building has been given over to the committee rooms, lounges and dining rooms of the society. The second floor contains the executive offices together with the offices of the Detroit Physicians Business Bureau, the collection department of the society. The smokers' room and the billiard and ping-pong room will occupy paneled space in the basement. A new feature of the society's headquarters is the Seniors' Room, set aside for physicians who have been in practice more than twenty-five years. The Noon Day Study Club, composed of physicians under 40 years of age, also occupies space in the building. Elaborate entertainment was provided at the housewarming and forty-three valuable door prizes were awarded. The Wayne County Medical Society had occupied its home in the Maccabees Building for five years.



MINNESOTA

Liquor Prescribing in Minnesota.—The Winona, Minn., *Republican Herald* cites an interview with S. B. Qvale, district superintendent of the Bureau of Industrial Alcohol in Minneapolis, in which he says that the total number of permits in Minnesota is 1,600. Of those who have permits, few physicians use the limit. Some physicians keep their books for two or three years without completely using them, and less than 7 per cent of physicians in the state use the full number of prescriptions allowed.

NEBRASKA

Health at Omaha.—Telegraphic reports to the U. S. Department of Commerce from eighty-three cities with a total population of 36 million, for the week ended February 20, indicate that the highest mortality rate (21) appeared for Omaha and the rate for the group of cities as a whole, 12.5. The mortality rate for Omaha for the corresponding week last year was 13.7. The annual rate for the eighty-three cities for the seven weeks of 1932 was 12, as against a rate of 14.4 for the corresponding period of 1931. Caution should be used in the interpretation of weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits or that they have large Negro populations may tend to increase the death rate.

Society News.—The Nebraska section of the American College of Surgeons held its annual assembly in Omaha, February 23-24. Among speakers listed on the program were Drs. Frank C. Mann, Rochester, Minn., who spoke on "Physiology of the Biliary Tract"; William E. Lower, Cleveland, "The Prostatic Problem"; Vilray P. Blair, St. Louis, "Surgery of the Ocular Appendages and Related Structures," and Louis J. Hirschman, Detroit, "Umbilical Colostomy in Carcinoma of the Rectum."——Drs. William L. Shearer and Rodney W. Bliss, Omaha, addressed the Otoe County Medical Society, Nebraska City, January 11, on "Upper Respiratory Infection."——Drs. Frederick W. Niehaus and John P. Lord, Omaha, addressed the Omaha-Douglas County Medical Society, February 9, on "Cardiac Enlargements with Special Reference to Orthograms" and "Deformities and Disabilities of the Lower Extremities," respectively.

NEW JERSEY

Society News.—Dr. Thomas McCrae, Philadelphia, addressed the Mercer County Medical Society, in January, on "Troubles of the Colon."——Dr. Frederick T. Van Beuren, Jr., New York, presented a paper before the Morris County Medical Society at the New Jersey State Hospital, Greystone Park, January 21, on "Symptoms of Acute Intestinal Obstruction with Relation to Other Acute Surgical Conditions of the Abdomen."——Drs. Matthew Walzer and Albert F. R. Andresen, Brooklyn, addressed the Passaic County Medical Society, Paterson, January 14, on "Allergy of the Respiratory Tract" and "Allergy of the Gastro-Intestinal Tract," respectively.——Dr. John A. Kolmer, Philadelphia, addressed the Gloucester County Medical Society, Pitman, January 22, on "Specific Treatment of Pneumonia."

Bills Introduced.—S. 189 proposes (1) to require every motor vehicle to be covered by adequate indemnity insurance and (2) to permit all persons injured by motor vehicles without regard to the negligence of either party, to recover specific amounts from the insurers of the motor vehicles causing the injuries. The indemnity recoverable is to include "indemnity for medical, surgical, hospital and nursing services, and the cost of medicines and appliances, actually incurred as a result of the accident." A. 215, to amend the workmen's compensation act, proposes to eliminate the statutory definition of hernia as ordinarily a disease and only rarely an accident, and as presumptively of either congenital or slow development in the absence of a tear or puncture of the abdominal wall. Proof of the industrial origin of a hernia may be by preponderance of evidence and need not as at present be conclusive proof. Time for the manifestation of symptoms after the event alleged to have caused the injury, within which industrial origin is to be presumed, is extended. Detailed provisions of the present law defining the relative responsibilities of employer and employee for the treatment of an industrial hernia will be eliminated if this bill is passed.

NEW YORK

Society News.—Dr. William H. Park, New York, addressed the Medical Society of the County of Rensselaer, January 12, on prevention of diphtheria, scarlet fever and poliomyelitis. Dr. Eugene F. Connally, Troy, retiring president, presented a paper on Welch bacillus infection.——Dr. Joseph C. Doane, Philadelphia, addressed the Broome County Medical Society, Binghamton, January 5, on "Relations Between the Medical and Nursing Professions and the Hospitals."——Dr. Harry R. Lohnes, Buffalo, presented a paper on "Anemia in Infancy and Childhood" before the Genesee County Medical Society, Batavia, January 13.

Prizes for Essays.—The Medical Society of the State of New York announces two prizes to be awarded this year. The Merritt H. Cash Prize will be given to a member of the state society who submits the best original essay on a subject to be designated by the committee on prize essays. This prize, established in 1863, has been awarded only four times. The second prize is the Lucien Howe Prize, a medal to be given for the presentation of the best original contribution to the knowledge of surgery, preferably ophthalmology. Competitors need not be members of the New York society. Essays must be submitted before May 9, to the Committee on Prize Essays, Medical Society of the State of New York, 2 East One Hundred and Third Street, New York. Members of the committee are Drs. Edwin MacD. Stanton, Schenectady, Albert C. Snell, Rochester, and Edgar A. VanderVeer, Albany.

Bills Introduced.—S. 959 and A. 1168 propose that the state commissioner of health assume and continue the functions of the bureau of venereal diseases in the state department of health. S. 1083 and A. 975, to amend the medical practice act with respect to the practice of osteopathy, propose (1) to denominate osteopaths as osteopathic physicians; (2) to provide that "a license to practice osteopathy shall not entitle the holder thereof to perform any surgical operation involving incision for the opening of a natural body cavity, for the removal of cancer or other tumor, for the amputation of an extremity or an appendage, or for the removal of any gland or organ, or part thereof, of the human body; nor shall such license permit the holder thereof to administer drugs, except narcotics, anesthetics, antiseptics, serums, vaccines and antitoxins," and (3) to omit that portion of the present law which prohibits osteopathic licentiates from administering drugs or performing surgery with the use of instruments. A. 996 and S. 1270 propose to prohibit hospitals, supported wholly or partly by public revenue, from collecting any fee for medical services rendered while operating public clinics. A. 1165 proposes to authorize the state commissioner of health to establish in every county one or more cancer clinics. A. 1191 and S. 1273 propose to prohibit experiments on living dogs. A. 1217 proposes to create a board of hairdressers and cosmetologists and to regulate the practice of hairdressing and cosmetology. A. 1477 proposes to accord liens to charitable or governmental hospitals, treating persons injured in accidents, on any judgments or settlements obtained by the injured persons, by reason of such injuries.

New York City

Course for Psychiatric Social Workers.—The New York State Department of Mental Hygiene is conducting an institute for the social workers of the state institutions under its direction, at the New York State Psychiatric Institute and Hospital, February 15 to March 25. Among other lecturers taking part in the course, Dr. Howard W. Potter will conduct a course in child guidance, and Dr. Leland E. Hinsie a course in psychiatry.

Academy Afternoon Lectures.—Coming lectures in the afternoon series at the Academy of Medicine are as follows:

March 11, "Consecutive Clinical and Pathological Events in Cancer," Dr. Harrison S. Martland, Newark, N. J.
March 18, "Practical Points in Surgical Diagnosis," Dr. Frederic W. Bancroft.
April 1, "Chronic Colitis," Dr. Walter A. Bastedo.
April 8, "Ultraviolet Therapy," Dr. Edgar Mayer, Saranac Lake.
April 15, "The Influenzal Cold," Dr. William R. Williams.
April 22, "A Discussion of the Prostatic Problem," Dr. William E. Lower, Cleveland.

Dr. Nathan Rosenthal gave the lecture, March 4, on "Diseases of the Blood," with special reference to treatment.

Child Guidance Bureau to Open Clinic.—The new Bureau of Child Guidance of the Board of Education recently announced that a clinic for the treatment of cases of maladjustment is to be opened at the school at 228 East Fifty-Seventh Street under the direction of Leon W. Goldrich, Ph.D., director of the bureau. In its first experimental year the clinic will concentrate on the district from Forty-Fourth to Eighty-Seventh Street between Fifth Avenue and the East River. The work of the bureau has been organized into three divisions: the educational division, which will concern itself with parent education; the "liaison" division, consisting of representatives of city schools to serve as a link between the bureau and the schools, and a third division, to maintain relations with social agencies.

Graduate Course in Physical Therapy.—A six weeks' course in physical therapy for qualified graduates in medicine will be given at Columbia University College of Physicians and Surgeons, beginning March 15. The course will be limited to twelve and will not be given unless eight apply. It is divided into two weeks of lectures and demonstrations, which will be given at the College of Physicians and Surgeons, two weeks of clinical demonstrations, and two weeks of supervised clinical practice in several hospitals in the city. Instructors will be Drs. Norman E. Titus, William Bierman, Charles R. Brooke, Harold M. Herring, Cassius Lopez-de Victoria, Madge C. L. McGuinness, Robert Muller, Randolph Raynolds and William B. Snow, Jr. The fee for the course is $150.

Demonstrations in Physical Therapy.—The Medical Society of the State of New York, through its committee on public health and medical education, sponsored a series of conferences and demonstrations on physical therapy in traumatic conditions for members of medical societies of New York and Bronx counties at the New York Academy of Medicine during February. Physicians in charge were Drs. William V. Healey, "Indications and Contraindications"; Heinrich F. Wolf, "Uses and Technic of Superficial Health Measures"; William Bierman, "Uses and Technic of Diathermy"; Kristian G. Hansson, "Uses and Technic of Massage and Therapeutics"; Richard Kovacs, "Electrodiagnosis: Galvanic and Low Frequency Currents," and Herman L. Reis, "The Compensation Viewpoint."

Society News.—Dr. Joseph H. Globus addressed the Medical Society of the County of Queens, February 23, on "Brain Tumors: Anatomy, Diagnosis and Management." The society has recently authorized the formation of a section on internal medicine and pathology.——Among other features a symposium on the heart was given at the meeting of the International and Spanish-Speaking Association of Physicians, Dentists and Pharmacists, February 19, by Drs. Russell L. Cecil, Harold E. B. Pardee and Carl P. Sherwin.

Physicians' Art Exhibit.—Two hundred and eighty-one exhibits of paintings, sculpture, prints and objects of art created by seventy-three American physicians make up the annual show of the New York Physicians Art Club, now in progress at the New York Academy of Medicine. According to the New York *Times*, the work is conservative and there is a preponderance of outdoor subjects, which indicates that for the physician art is largely a vacation activity. Thirteen contributors from outside New York are represented, including two from California. Dr. Louis C. Schroeder is secretary of the club.

NORTH DAKOTA

Society News.—At a meeting of the Cass County Medical Society, Fargo, January 25, speakers were the following physicians from Minneapolis: Drs. Chester A. Stewart, "Resolving Parenchymal Tuberculosis of First Infection in Infancy"; Solon Marx White, "Groundwork for Medical Service"; James M. Hayes, "Treatment of Acute Empyema of the Gallbladder"; Walter A. Fansler, "Cancer of the Rectum," and Dr. Edward L. Tuohy, Duluth, Minn., "Chronic Nontuberculous Lung Lesions."——Dr. Avery D. Prangen, Rochester, Minn., was the guest speaker at the midwinter meeting of the North Dakota Academy of Ophthalmology and Oto-Laryngology, Fargo, February 13; his subjects were early management of strabismus, operative treatment of strabismus, and problems and procedures in refraction.

OREGON

Meeting of Medical Alumni.—The annual meeting of the Alumni Association of the University of Oregon Medical School will be held at the university, March 7-9. Disorders of the heart will be the principal topic for discussion, with Dr. William C. Munly, San Francisco, as the guest speaker. Eighteen clinics covering general and special phases of medicine and surgery are scheduled.

PENNSYLVANIA

Society News.—Dr. Hugh R. Robertson, Warren, discussed the history of anatomy in his address as retiring president of the Warren County Medical Society, January 18.——Dr. George Harlan Wells, Philadelphia, addressed the York County Medical Society, January 16, on treatment of pneumonia. At the society's annual banquet, January 7, Drs. Spencer M. Free, DuBois, and Wilmer Krusen, Lansdowne, spoke on "Sentiment in a Doctor's Life" and "The Doctor in Literature," respectively.——Dr. John R. Caulk, St. Louis, will address the Pittsburgh Urological Association, March 14, on "Use of the Cautery Punch in Relief of Urinary Obstruction Caused by Carcinoma of the Prostate."——At a meeting of the Pittsburgh Academy of Medicine, February 23, Dr. Charles C. Guthrie presented a "Summary of Results of Twenty-Years' Experimental Study of the Heart," and Dr. Robert C. Grauer, a paper on "Practical Aspects of Calcium Metabolism in the Light of Recent Experimental Study."——Drs. Elmer H. Funk, Philadelphia, and Samuel B. English, Glen Gardner, N. J., were the guest speakers at the forty-second winter meeting of the Lehigh Valley Medical Association in Allentown, January 28. Dr. Funk spoke on diseases of the kidneys and Dr. English on compression of the lungs.——Dr. John A. McGlinn, Philadelphia, addressed the Berks County Medical Society, February 9, on "Control of Uterine Bleeding."——Dr. Donald Guthrie, Sayre, addressed the Erie County Medical Society, Erie, February 2, on early diagnosis and treatment of acute intestinal obstruction.

Philadelphia

Society News.—Dr. William H. Kraemer, Wilmington, Del., was elected president of the Alumni Association of Jefferson Medical College at the thirty-sixth annual meeting, February 18, at the college.——Dr. Calvin M. Smyth, Jr., delivered the postgraduate seminar of the Philadelphia County Medical Society, February 26, speaking on traumatic surgery.——At a meeting of the Philadelphia Neurological Society, February 26, speakers were Drs. Melbourne J. Cooper, "Tumors of the Gasserian Ganglion"; Ross H. Thompson, "Focal Enlargement of the Temporal Bone as a Sign of Brain Tumor"; George Wilson and Murray M. Friedman, "Hereditary Cerebellar Ataxia."

Personal.—Dr. Charles E. Bricker, said to be the oldest city police surgeon in point of service, has resigned, effective, March 1, because of ill health. He was appointed in 1884.——

Dr. Robert A. Schless was appointed acting chief of the Bureau of Charities and Correction, February 11, by Clinton R. Woodruff of the department of public welfare.

Da Costa Lecture.—The second annual lecture under the John Chalmers Da Costa Foundation, established in 1930, will be delivered by Dr. Thomas A. Shallow, professor of surgery, Jefferson Medical College, before the Philadelphia County Medical Society, March 9, on "Diverticulum of the Esophagus." Dr. Da Costa delivered the lecture in 1931, reviewing his forty years' work in surgery (The Journal, March 14, 1931, p. 871).

SOUTH CAROLINA

Personal.—Dr. D. Lesesne Smith, Spartanburg, has been appointed a member of the state board of health to succeed the late Dr. Davis Furman, it is reported.

Bills Introduced.—S. 1286, to amend the pharmacy practice act, proposes to permit any licensed physician to obtain, without examination, a license to practice pharmacy. H. 1520 proposes to create a commission of charitable institutions to assume and exercise all powers, duties and functions now exercised by the superintendents of the state hospital, the state training school and the John de La Howe industrial school. H. 1521 proposes to abolish the board of medical examiners and the board of pharmaceutical examiners and to vest their respective powers, duties and functions in the state medical college.

VIRGINIA

Third McGuire Lecture.—Dr. James S. McLester, Birmingham, Ala., delivered the third annual Stuart McGuire Lecture of the Medical College of Virginia, in Richmond, March 4, on "Nutrition in Its Newer Aspects." The McGuire Lecture was established in recognition of the service of Dr. McGuire to the college, to medical education and to surgery.

Bills Introduced.—H. 181 proposes that the health commissioner (1) shall be the executive officer of the state board of health; (2) shall be a physician, a graduate of a medical college recognized by the Virginia State Board of Medical Examiners, and (3) shall be skilled and experienced in the administration of public health duties and versed in sanitary science. H. 196 proposes to accord liens to hospitals treating persons injured in accidents, on any judgments or settlements obtained by the injured persons by reason of their injuries. H. 222 proposes to repeal that section of the law regulating the sale of "hypnotic drugs" which requires that such drugs shall not be sold or given away except on the written prescription of a licensed physician, dentist or veterinarian. S. 270, to amend the medical practice act, proposes (1) that in proceedings against a person for practicing medicine or any branch thereof, without a license, the burden of proof shall be on the defendant to establish his right to practice; (2) to authorize the board of medical examiners, to revoke or suspend a license of a person who is grossly ignorant or careless in his practice, and (3) to state in detail the procedure to be followed in revoking a license.

GENERAL

Change in Date of Meeting.—The American Association of Pathologists and Bacteriologists will meet in Philadelphia, April 28-29, instead of March 24-25, as previously announced. Dr. Howard T. Karsner, 2085 Adelbert Road, Cleveland, Ohio, is the secretary.

Memorial to War Dietitians.—A memorial to the dietitians who served in the World War, given by the American Dietetic Association, was unveiled in the American Red Cross Building, February 6. Among the speakers was Major-Gen. Robert U. Patterson, surgeon general of the U. S. Army, on "The Future of the Dietitian."

Midwinter Clinic.—The American Association of Obstetricians, Gynecologists and Abdominal Surgeons will hold its midwinter clinic in Philadelphia, March 7. The group will visit in turn for surgical, gynecologic and obstetric clinics the following hospitals: Joseph Price Memorial, Temple University, Stetson and Jefferson, including Curtis Clinic. After a dinner at the Union League the guests will hear addresses by Drs. James W. Kennedy and Barton Cooke Hirst, on "Joseph Price, the Man, Philanthropist and Surgeon" and "Development of Obstetrics and Gynecology in Philadelphia," respectively, and will see a motion picture on the "Ectopic Heart," presented by Dr. I. Charles Lintgen.

Pacific Coast Obstetrical and Gynecological Society.—At a recent meeting in San Francisco, the Pacific Coast Obstetrical and Gynecological Society was organized. Dr. Frank W. Lynch, San Francisco, was elected president, and Dr. Albert L. Mathieu, Portland, Ore., was made president-elect. Dr. Clarence A. DePuy, Oakland, was elected secretary. The object of the society will be to organize members of the medical profession who limit their practice to obstetrics and gynecology for the promotion of the highest ethics of the specialties. The membership is composed of active, senior and honorary members. The active membership is limited to fifty. The next meeting of the society will be held in Los Angeles in November.

Society News.—The American Psychiatric Association will hold its annual meeting in Philadelphia, May 30-June 3.——The American Urological Association will meet, May 30-June 2, in Toronto.——Dr. Ira Solomon Wile, New York, was elected president of the American Orthopsychiatric Association at its annual meeting in Baltimore, February 18-20; Dr. Frederick H. Allen, Philadelphia, was elected vice president, and Dr. George S. Stevenson, New York, reelected secretary.——The American Association of School Physicians will hold its fifth annual meeting in Washington, D. C., October 21-22, preceding the meeting of the American Public Health Association, October 24-27.——Dr. Clarence A. Shore, Raleigh, was elected president of the Tri-State Medical Association of the Carolinas and Virginia, at the annual meeting in Raleigh, N. C., February 15-17. Among speakers at the meeting were Drs. John Shelton Horsley, Richmond, on "Double Harelip"; Wingate M. Johnson, Winston-Salem, N. C., "Influence of General Infections on Local Lesions"; Charles S. White, Washington, D. C., "Reidel's Thyroiditis," and Tom Douglas Spies, Cleveland, "Pellagra a Disease of Unknown Etiology—Response to an Unorthodox Diet." Dr. Henry Mason Smith, Tampa, Fla., made an evening address, February 15, on "The Cerebral Mechanism of Sleep and Some of Its Disorders."

Medical Bills in Congress.—*Changes in Status:* S. 100 has passed the Senate, authorizing any institution heretofore incorporated under the laws of the District of Columbia, operating exclusively in a foreign country, to use the words "American," "Federal," and similar words in its title. S. 695 has been favorably reported to the Senate, with amendment (Senate Report No. 295). The bill originally proposed among others things to authorize an appropriation for $20,877,000 for additional hospitals and domiciliary and outpatient facilities. The amendments offered by the committee strike from the bill everything relating to such proposed construction and only provide for a reduction in payments to veterans under the Disabled Emergency Officers Retirement Act while they are being maintained in institutions by the Veterans' Administration. S. 894 has passed the Senate, directing the retirement of acting assistant surgeons of the United States Navy at the age of 64 years. S. 3110 has passed the Senate, with an amendment, authorizing the Secretary of the Interior to arrange with the states for the education, medical attention and relief of Indians. H. R. 9699, the Treasury and Post Office Departments appropriation bill, has been reported favorably to the House. It carries an appropriation of $11,421,413 for the United States Public Health Service, including the sum of $300,000 for special studies of, and demonstration work in, rural sanitation. The bill also proposes an appropriation of $1,625,000 for the Bureau of Narcotics. *Bills Introduced:* S. 3759, by Senator Norbeck, South Dakota, to construct and equip a hospital for Indians at Wagner, S. D. S. 3766, by Senator Thomas, Oklahoma, to provide that any ex-service person shown to have had a tuberculous disease of a compensable degree for a period of five or more consecutive years, and whose disability on account of such disease during such period has been rated as total and temporary, shall be held to be totally and permanently disabled for all purposes under the World War Veterans' Act. S. 3781, by Senator Costigan, Colorado, to authorize an appropriation of $100,000 to recondition the buildings at the veterans' hospital, Fort Lyon, Colorado. S. 3800, by Senator Copeland, New York, to provide for federal cooperation with the several states in the physical restoration, education, vocational guidance and vocational education of "any person below the age of twenty-one years who by reason of physical defects or infirmities, whether congenital or acquired by accident, injury, or disease, are or may be expected to be totally or partially incapacitated for participation in the educational and vocational activities expected of normal persons." S. 3818, by Senator Copeland, New York, to provide for the vocational rehabilitation of persons disabled in industry or otherwise. S. 3819, by Senator Copeland, New York, granting permits for the importation or manufacture for nonbeverage purposes of spirituous liquors of a particular kind or quality where the supply in the United States is insufficient to meet the current needs therefor. H. Res. 161, by Representative Rayburn, Texas, to provide a special rule for the consideration of H. R. 7525, the Bankhead rural health, and maternity and infancy hygiene bill. This resolution is before the House Committee on Rules. H. R. 9260, by Representative Crowe, Indiana, to provide additional compensation for World War veterans for the loss of use of an eye in active service in line of duty. H. R. 9307, by Representative James, Michigan, to repeal the Emergency Officers' Retirement Act.

Deaths in Other Countries

Geheimrat Max von Frey, Ordinarius at the Physiological Institute, University of Würzburg, Bavaria, Germany, known for his research in the field of tactile, pain and caloric sensibility, died, January 25, in his eightieth year.

Government Services

U. S. Public Health Service

The following physicians have recently entered the public health service and have been assigned to active duty as follows: Asst. Surgs. David C. Elliott assigned to the marine hospital at Louisville; Benton Oliver Lewis, assigned to duty at Roma, Texas; Charles T. Meacham, Jr., Kinston, N. C., assigned to the marine hospital, Stapleton, N. Y., and Henry L. Wollenweber, Los Angeles, assigned to the marine hospital at San Francisco; Asst. Surg. Ralph Gregg has been promoted and commissioned as passed assistant surgeon, effective Dec. 28, 1931; P. A. Surg. Langdon R. White, relieved at Helena, Mont., and assigned at Albuquerque, N. M.; P. A. Surg. Elmer A. Carberry, relieved at San Francisco, and assigned at Manila, P. I.; P. A. Surg. George G. Holdt, relieved at Honolulu, Hawaii, and assigned at marine hospital, San Francisco; Surg. Henry A. Rasmussen, relieved at Cebu, P. I., and assigned at marine hospital, San Francisco.

Change of Station in the Navy

Lieut. Warren G. Wieand from navy hospital, Parris Island, S. C., to second brigade, U. S. Marines, Nicaragua; Lieut. Comdr. Oscar Davis, from navy hospital, Pensacola, Fla., to first brigade, U. S. Marines, Port au Prince, Haiti; Lieut. Comdr. Francis E. Locy from first brigade, U. S. Marines, Haiti, to navy hospital, League Island, Philadelphia; Lieut. Comdr. Leon W. McGrath from first brigade, U. S. Marines, Haiti, to navy hospital, Annapolis, Md.; Lieut. Comdr. John T. Stringer from first brigade, U. S. Marines, Haiti, to navy academy, Annapolis; Lieut. Edward P. Kunkel from navy station, Guam, to Navy Medical School, Washington, D. C.; Lieut. Edward T. Knowles from navy hospital, Mare Island, California, to navy station, Guam; Lieut. Comdr. Russell I. Craig from navy yard, New York, to Asiatic Station; Lieut. Bruce M. Summers, from navy training station, Newport, R. I., to Asiatic Station; Lieut. Burr Dalton, from navy hospital, Newport, to Asiatic Station; Lieut. Freeman C. Harris, from navy hospital, New York, to second brigade, U. S. Marines, Nicaragua; Lieut. Comdr. Elmer F. Lowry, from second brigade, U. S. Marines, Nicaragua, to treatment, Norfolk Navy Hospital, Portsmouth, Va.; Comdr. Gordon D. Hale, from Guardia Nacional Managua, Nicaragua, to navy hospital, Mare Island, Calif.: Comdr. John F. Riordan, from Norfolk Navy Hospital, Portsmouth, Va., to navy hospital, Pearl Harbor, T. H.

The Government Needs Physicians

Examinations are announced by the U. S. Civil Service Commission for the position of senior medical officer, medical officer and associate medical officer (cancer diagnosis and treatment). Applications must be on file with the U. S. Civil Service Commission at Washington, D. C., not later than March 22. Examinations are to fill vacancies in the veterans' administration throughout the United States. The entrance salaries range from $3,200 to $4,600 a year, less $570 a year for quarters, laundry and full subsistence when furnished. Competitors will not be required to report for examination at any place but will be rated on their education, training and experience. Applicants must have been graduated with a degree of doctor of medicine from a medical school of class A standing, senior medical officers or medical officers not more than twenty years and associate medical officers not more than three years prior to March 22, 1932. In addition, certain specified experience is also required. Further information may be obtained from the secretary of the U. S. Civil Service Board of Examiners at the postoffice or customhouse in any city, or from the U. S. Civil Service Commission, Washington, D. C.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Jan. 30, 1932.

Malformations of the Body from a New Point of View

In his lectures at the Royal College of Surgeons, Sir Arthur Keith said that fifty years ago Sir John Bland Sutton wrote a book to prove that in making its great evolutionary advances nature used methods akin to those of disease. An illustration was to be seen in the human body during the second and third months of development. Hernia was then produced outside the abdominal cavity and within the umbilical sac, where the greater part of the intestine underwent differentiation and growth. At the same time, preparations were being carried forward within the abdomen for their final fixation there. It was interesting to compare the modern operation for the radical cure of hernia with that which had been discovered by nature. At the end of the third month of development, the hernia at the umbilicus was cured automatically in a few days; the intestine was drawn back into the abdomen and the opening closed. Prof. J. E. S. Frazer has shown how this takes place. First, the walls of the abdomen expand by growth, so that room is made within for the intestine. Secondly, the mesenteries which attach the intestine to the posterior abdominal wall shorten and widen their attachments and draw in the intestine in a fixed and orderly manner. Thus the hernia, which has served a developmental purpose, is cured. But this process fails in 1 child in 3,000, who is born with an umbilical hernia.

How did hernia at the umbilicus become a normal process in the development of the higher animals? It began when a part of the intestine had to undergo a premature development to contain a store of yolk for the developing fish or frog until it could fend for itself. The developing bowel of the dogfish grows over, envelops and encloses its stock of yolk. At first the fish swims about with the yolk sac suspended from its body, being born with a congenital umbilical hernia, the covering of which is supplied by the body wall. As the yolk sac empties, the hernia is reduced, leaving no scar. When land-living, air-breathing vertebrates were evolved, the skin covering the yolk sac became more important than the sac itself. By precocious development and enormous expansion of the covering of the yolk sac, a hood was formed. This grew over and enclosed the developing embryo in a double envelop, the inner of which contained water. Thus the delicate tissues of the embryo were submerged in and supported by water, as are the eggs of the fish or frog, which can develop only in a fluid medium. The outer envelop serves as a lung. The umbilicus is the scar left at the point of detachment. Part of the body wall has been sacrificed for the development of the individual, and the umbilical scar is the token of this. In the higher mammals, including man, matters are carried a stage further. In the earlier stages of development, all efforts are expended on an extensive formation of that part of the body wall which in lower vertebrates (reptiles and birds) forms the envelops of the embryo. Development within a rigid shell and development within a living contractile uterus require different methods. The developing human ovum has to burrow into the living membrane of the uterus and in this position throw out its envelop—amnion and chorion. During this early period, from the eighth to the fourteenth day, the embryo itself remains in abeyance; all efforts are spent on the development of the coverings and the placenta, which have been evolved out of that part of the body wall which covers the yolk sac of fish and frog. The epithelial covering of the skin becomes the wildly growing devouring trophoblast. Part of the body wall becomes drawn out to form the umbilical cord. It is therefore not surprising that at a certain stage of development the cord contains coils of intestine, nor, when the elaborate processes for the withdrawal of the intestine from the sac are considered, that children should occasionally be born with a developmental hernia unreduced.

Sphalinger Discloses His Secrets

For many years, Sphalinger's treatment of tuberculosis has been brought before the British public. Extravagant claims were made for it, principally in the lay press, where campaigns describing him as a scientist who had spent his fortune in investigation for the benefit of humanity have been carried on from time to time. In 1922 the British Red Cross voted a large sum to enable him to produce his remedies, and the ministry of health offered facilities for their trial under scientific supervision. But while appealing for funds, Sphalinger resolutely refused to disclose the method of production of his vaccine, declaring that this would lead to improper exploitation. Hence the medical profession, with a few exceptions, ignored him. At last he has changed his tactics, and at a meeting held in a private house in London attended by some persons of social but not of medical importance (many of whom had given him financial support) he announced that his vaccine for immunization of cattle is prepared by culture of tubercle bacilli obtained from the slaughterhouse. A bovine body fluid (defibrinated serum, organ or tissue extract) is coagulated in an incubator at 65 C. When cold, there is spread on the coagulated surface a small quantity of normal (nonheated) bovine body fluid. These mediums are inoculated with native bovine bacilli (unaltered by passages on artificial mediums or through another animal species) and are incubated in the dark at from 38.5 to 39 C. As soon as the culture has sufficiently grown it is reinoculated on specific normal (unheated) bovine mediums, preferably liquid, consisting of defibrinated blood, serum, organ extract or tissue extract. These cultures are again incubated in the dark at the same temperature. The bacilli from them are collected and made into an emulsion, in the absence of oxygen, with distilled water or physiologic solution of sodium chloride. The emulsion is kept cool and in the dark until all the bacilli have died a natural death. It is necessary to keep a vaccine a year or more before it can be used. It is then harmless, though effective for immunization. For man the vaccine comprises a mixture of three types of vaccine: (1) the bovine vaccine described, (2) a vaccine made from bovine bacilli grown in the dark at 37.5 C. on human defibrinated blood, serum, ascitic or pleural fluids, and (3) a vaccine made from human bacilli grown on the last mentioned mediums. The human bacilli should be isolated from a human lesion without animal passage to avoid adaptation to another species. The human and bovine culture mediums must come from tuberculosis-free bodies. Sphalinger says that, while there are fifteen kinds of tuberculin on the market, his is the only one that confers immunity.

Poisoning by Arsenic in Wall Paper Rendered Gaseous by Molds

An inquest was held on a girl, aged 7 years, who lived in the forest of Dean. The county analyst found 2.65 mg. of arsenic in her body. In the sitting room of her house he discovered that arsenic was being given off in gaseous form from the wall paper, which was affected by mold. In samples of the paper from the dry parts of the wall he found 8.3 parts of arsenious oxide per million, but where the mold grew there were only 2.3 parts; in the plaster there were 91 parts. The spores of the mold attached themselves to the damp paper, grew vigorously, and generated a gaseous form of arsenic. He also found traces of arsenic in the systems of other members of the family. Prof. H. A. Scholberg, honorary pathologist to the Cardiff Infirmary, said that what he considered had happened was that the flour paste used for putting on the paper provided a medium for the growth of the mold, which then liberated the arsenic. The jury returned a verdict of death from dysentery, with arsenical poisoning as a contributory cause.

Crystalline Vitamin D

At a meeting of the Royal Society, F. A. Askew, R. B. Bourdillon, H. M. Bruce, R. K. Callow, J. St. L. Philpot and T. A. Webster reported that further purification of vitamin D had been achieved by esterification of the distillate formerly described as "calciferol." The purified product has an activity twice as great as any previously recorded and appears to be identical with vitamin D_2 of Linsert and Windhaus. It produces toxic effects when given in excessive doses. A simplified process was described for preparing the pure product from the irradiation products of ergosterol without distillation.

PARIS

(From Our Regular Correspondent)

Jan. 20, 1932.

Annual Assembly of the Confederation of French Medical Syndicates

The annual assembly of the confederation of the French medical syndicates is a convention of the delegates chosen by the medical syndicates of the various departments of France and is devoted solely to the consideration of professional problems. This last assembly was characterized by considerable agitation and gave rise to heated discussions on problems that are disturbing the minds of French practitioners. The most important question considered was the law pertaining to social insurance. By their concerted action and by threatening to refuse to cooperate with the government in the application of this law, the syndicates have succeeded in creating for themselves a tolerable situation, since persons holding such social insurance are compelled to pay their physician immediately themselves and are then reimbursed by the departmental sick benefit funds for a certain proportion of the sum expended. In this manner the physician is always certain of being paid the fee that he asks, and the patient is absolutely free to choose the physician that he prefers. But this situation is threatened in various ways; for the law is based on an unfortunate conception that is costly for the insured, for the employers and for the state, and the government is seeking to take away from the physicians, in a roundabout way, a part of the guarantees that it was obliged to concede to them at the time the law was voted on. Thus, a new bill has been proposed that provides for the administration of the sick benefit funds by the old mutual aid societies, which have not ceased to exist, in spite of the fact that they fulfil the same purposes as the law, and which continue to exert a wide influence, from the political point of view, on the members of parliament. The confederation of the medical syndicates has decided to oppose this bill by every available means; for these societies apply a much lower fee schedule than the regular fee schedule of the physicians. Furthermore, the societies pay the physician according to the societies' schedule; the physicians do not collect from the patient. If the pending bill is passed, all the advantages that the syndicates secured for the medical profession at the time the law was voted on will be lost. The confederation protested likewise against a proposed bill that would lower the fee schedule agreed on for occupational accidents, on the ground that, since this agreement was entered into, there has been a decline in the cost of living. The statement is inaccurate, and, furthermore, there has been considerable increase in the professional taxes imposed on physicians. Long discussions were carried on with regard to the creation of centers of diagnosis, a proposal originating with the administration of the sick benefit funds. Many of the representatives of the medical syndicates were systematically opposed to the idea, because they feared it would result in the diminution of fees for the physicians who specialize in radiologic and biologic examinations. The general secretary of the confederation, Dr. Cibrié, who was attacked at first for the support he gave the project, succeeded, by force of eloquence, in convincing the assembly that the syndicates would find it to their advantage to take the lead in the creation of such centers, provided the physicians serving in the centers would agree not to accept private patients outside the centers, would confine themselves to patients sent to them by the practitioners, and would accept the fee schedule adopted by the syndicates. This would be the best means of preventing the health insurance societies from establishing such centers themselves, which would entail a much heavier financial loss for the members of the syndicates.

A Model Radiologic Service in Paris

At the Hôpital St. Louis, a large radiologic service has been created that embodies all modern improvements imaginable. The minister of public health attended in person the opening of the new service. The institute was erected through the initiative of Dr. Belot, director of the service, who supervised himself all the details of the construction. A thick wall sheathed with sheets of lead insulates completely the roentgen apparatus from the booth occupied by the patients and the operators. The operators control the apparatus from a distance. The floor is entirely insulated by a thick layer of rubber. In addition to numerous dressing rooms for the patients, there are three rooms for radiologic diagnosis. The physician dictates his observations to secretaries, seated in an adjoining room, by means of a microphone and loud-speaker. The roentgenologist is enclosed in a special booth that assures him absolute protection. A powerful generator enables the operator to make roentgenograms of the lung at the rate of one every 2/100 second. Dummy lifts are used to transfer the plates at once to the laboratories on the ground floor, where they are immediately developed and then placed in an electric drier. The radiotherapeutic service comprises ten rooms. The patients are enclosed in a booth and the nurses control the apparatus from without, while they supervise the patient through a small window in the wall. There are two sets of equipment for superficial roentgenotherapy, an apparatus for moderately penetrative roentgenotherapy, and three sets of equipment for high voltage roentgenotherapy with 250 kilowatts. The generators are coils with a constant tension of 30 milliamperes. The Coolidge tubes, standard type, are enclosed in opaque containers. In other rooms are the various types of apparatus for physical therapy: mercury lamps, diathermic devices, arc lamps, and the like; the filing cabinets; in addition, there are assembly and recreation rooms. Foreign physicians who visited the institute at the time of holding of the International Radiologic Congress stated that nowhere else is there an institute so complete and so modern. From the standpoint of capacity, 10,000 patients a year can be given diagnostic examinations and 30,000 patients can receive widely divergent forms of treatment each year.

Distribution of a Large Government Appropriation

Mr. Camille Blaisot, minister of public health, has decided on the manner of distributing the sum of 385,000,000 francs, which has been placed by parliament at the disposal of his department as a portion of the appropriations made for the improvement of the national equipment for the promotion of public health. The dominant idea governing the distribution was the desire to use the appropriated sums chiefly for undertakings that would necessitate the employment of a large amount of man power. The distribution as affecting hospital centers was influenced, in part, by a consideration of the needs and the local possibilities for absorption of the appropriated sums during 1932. For the hospital units the subsidies allowed amount to 180,000,000 francs. Subsidies amounting to 30,000,000 francs were accorded to societies that support the crusade against child mortality. The sum of 5,000,000 francs was granted to the vacation camps and the camps located adjoining hot springs. As regards the organizations carrying on the crusade against the social diseases, it will be observed that the anticancer centers are to receive 27,000,000 francs; the societies devoted to the eradication of venereal disease, 16,000,000; the sanatoriums, 33,000,000; the preventoriums, 21,250,000; the antituberculosis dispensaries, 2,960,000, and the schools for the training of nurses, 15,590,000. Certain societies that have an appeal from the scientific or social point of view are to receive efficient financial aid; such, for example, as the Institut du radium of the Curie Foundation, 12,500,000 francs; the anticancer center at Villejuif, 12,500,000; the Renaissance sanitaire (hospitals of the mutual aid societies), 11,500,000; the Ecole de puériculture de la Faculté de médecine de Paris, 8,091,000; the Foch Foundation, 4,000,000, and the society for the mutual protection of railway employees (Etrembrières, Haute-Savoie), 2,000,000.

Budget of the Assistance Publique in Paris

The municipal council of the city of Paris has finally accepted the budget of the Assistance publique for the year 1932. The director of the service, Mr. Louis Mourier, had been compelled to make a demand that the Assistance publique be reimbursed by the department of social insurance for the expenditures occasioned by the hospitalization of its insured members. The sum set aside for the purpose was 62,000,000 francs; but, during the year, this allowance was reduced to 22,000,000 francs, of which only 13,000,000 francs has been turned over. Mr. Mourier holds that, in order to regulate definitely the relations between the Assistance publique and the department of social insurance, the law should be modified and a lump sum agreed on, which, after careful calculations, he placed at 54,600,000 francs. Such a system would obviate a great deal of paper work, which would constitute the best argument in favor of the change in the law. He will bring the matter before the government authorities at a later date. The council then agreed on the subsidy that the city was to allow the Assistance publique, which was fixed at 321,470,617 francs, 3,470,617 of which was for the bureaus of public charity. It approved likewise the various proposals of the chairman of the budgetary committee concerning the erection of hospitals, and repairs and improvements in the existing hospitals.

BERLIN

(From Our Regular Correspondent)

Jan. 18, 1932.

Automobile Accidents Due to Drunkenness

Both the Prussian ministry of commerce and industry and the ministry of the interior have drawn attention to the fact that numerous traffic accidents occurring in recent months have been due to intoxicated drivers. It is emphasized that a small quantity of alcoholic beverages is sufficient to reduce materially the steadiness, the keenness of observation and the reaction time of the driver. The driver of an automotive vehicle—whether public or private—who, in compliance with the ordinance affecting the traffic of automotive vehicles, is "under strict obligations to exercise proper care in the driving and management of his vehicle," violates the law if he drives his car after he observes that he is under the influence of alcohol. In such an event he is under obligations under all circumstances to desist from driving his car. In the future, every driver of an automotive vehicle who causes an accident as a result of the ingestion of alcoholic beverages will without exception be deprived of his license. According to a decision of the supreme court, no consideration should be given to the financial status of the driver or to the contention that the financial position of the driver would be jeopardized if his license should be canceled. In the schools that give instruction in automobile driving, special emphasis should be placed on the consequences of such violations.

Eugenics as a Subject for Medical Students

The state council of Prussia will in the near future consider a proposal that the study of eugenics and of the theory of heredity be made obligatory for physicians, teachers and theologians and a subject for examination for physicians. The proposed legislation provides also that the pupils of the upper classes in the grammar schools, high schools, trade schools and continuation schools be given instruction concerning the essential significance of eugenics and the theory of heredity. Furthermore, an exchange of eugenic health certificates before being engaged to marry, and the widest possible spread of knowledge in these fields to the whole *reich* are demanded. A pamphlet showing the reasons for such legislation, prepared by Dr. Struve, refers particularly to the research of Prof. Dr. Muckermann and of Dr. v. Verschuer of the Berlin Kaiser-Wilhelm-Institut and gives a picture of the danger associated with the neglect of eugenic ideas as affecting the future of the people.

Hockey Injuries

The public does not usually have clear ideas in regard to the frequency of injuries resulting from participation in sport. It will doubtless occasion surprise that statistics covering 2,152 hockey games, in which 23,672 players participated, show that only 0.33 per cent of the players suffered injuries. This result was reached by Privatdozent Dr. Arnold of the department of athletics at the University of Leipzig. The injuries were distributed as follows: men players, 0.35 per cent; male juveniles, 0.25 per cent, and women and girls, 0.35 per cent. The low percentage in male juveniles is explained by the facts that they do not enter into the game quite so vigorously as do adults, and that their greater elasticity in case of falls and collisions reduces the danger. If one considers only the typical hockey injuries, those that are caused by hockey sticks and balls, and excludes those that occur also in connection with other sports, the proportion of hockey accidents is reduced to 0.19 per cent. Arnold observed twice as many injuries from hockey sticks as from the puck. Among women players, however, injuries resulting from the driven object were more frequent. Injuries from hockey sticks concern chiefly the head and only secondarily the lower extremities — less frequently the upper extremities and the trunk. Injuries inflicted by the driven object have a similar distribution. Indirect injuries, on the other hand, concern more frequently the limbs, and more rarely the head and trunk. Almost two thirds of the injuries in the narrower sense are injuries of the soft parts. Injuries of the bones and joints follow but are much less frequent. Fractures are, however, rare. Commensurate with the predominance of the stick and ball injuries, persons so injured recover rapidly. However, after indirect hockey injuries, considerable time usually elapses before injured persons can again take up the game.

The Storing of Roentgen Films

A police ordinance concerning the storing of roentgen films went into effect in Prussia, January 1. The ordinance applies not only to hospitals but to all other institutions for the care of health and the promotion of public welfare: care-taking and consultation centers, policlinics, ambulatoriums, laboratories and the offices and "institutes" of practicing physicians. There is a general prohibition against leaving roentgen films around open for any length of time. They must not be kept permanently in sickrooms, even when wrapped or enclosed in holders. Various regulations that presuppose a far-reaching control are imposed also for unused and for developed films, files and supply houses. In buildings that are permanently occupied by human beings, the storing of supply stocks is permitted only in the top story, and the use of the building for that purpose must be in accordance with the municipal fire regulations, which applies also to store rooms that serve solely as depositories of films. Special regulations must be followed with reference to heating, the installation of electric lights and protection against lightning. Not only the hospitals but also the general practitioners must secure permission to store roentgen films. These safety provisions are not applicable if roentgen safety films are used exclusively or stored by themselves. The safety films bear on the package and on each film the name "DIN-Sicherheitsfilm." This designation can be applied only to a film which, if a piece 20 cm. long and 3.5 cm. wide is held vertically and is lighted with a match at the lower edge, after removal of the flame either ceases to burn or requires sixty seconds for its complete combustion.

The Anatomy of the Child

The "Museum des Kindes" is to be opened, April 1, in the building of the Allgemeine Ortskrankenkasse in Hamburg. For this purpose, the method of the Leipzig anatomist Spalteholz for the making of anatomic preparations transparent has been further developed. The object of the exhibit is to make an exact knowledge of the healthy and the sick child available to every one. The exhibit will comprise 150 preparations that illustrate the normal and pathologic anatomy of the child, showing the development from the third day of embryonic life up to the ninth month inclusive. The original preparations will be finely executed and great importance will be laid on technical accuracy. For example, one will be able to see the stained blood vessels and the internal organs.

POLAND

(From Our Regular Correspondent)

Jan. 5, 1932.

Polish Conference on Tuberculosis

The fourth Polish Conference on Tuberculosis was held at Zakopane, a climatic resort on the slope of the Tatra Mountains, in September, 1931. The sessions were held under the chairmanship of Dr. Severin Sterling, dean of the Polish phthisiologists, in the sanatorium of the Polish Red Cross Society. Especially interesting were the papers of Drs. Michałowicz and Popowski of Warsaw, and of Skibiński of Zakopane, which dealt with the relation that exists between the allergic manifestations and the resistance of the organism in tuberculosis. Dr. Skibiński expressed the view that pulmonary tuberculosis should be treated by introducing active bacilli into the patient. Children under 2 years of age should be protected against infection, and should be immunized by inoculation before reaching the age of puberty. It is more difficult to contract tuberculosis after puberty, but the infection is then more dangerous. Skibiński considers the installation of isolation services in the sanatoriums as superfluous, for such action tends to increase fear. Supplementary infections are not always harmful; they sometimes develop a greater resistance than the elementary infection and may aid in the treatment of the existing disease.

The conventionists visited the sanatorium for teachers and the hospital, and attended the dedication of a new health center in Zakopane. The following day, Dr. Etienne Rudzki lectured on the classification of tuberculous patients. The diagnosis must not be based solely on the physical examination but must take into account also the bacteriologic, serologic and radiologic tests. It must be discovered whether the tuberculous process is active or stationary. Not until after the establishment of a sure diagnosis should the patient be sent to an institution in keeping with his condition. All patients should be registered in the antituberculosis dispensaries. He advocated the application in Poland of the classification of Sterling, adopted by the first Polish Conference on Tuberculosis, held in 1925. As for the preventive treatment, it is applied to those who have not developed as yet an active process but who come from a milieu contaminated by tuberculosis; also to suspects, and to patients who have passed through a congestion of the lungs or a surgical tuberculosis. The new-born who may have been contaminated by their environment should be subjected to a preventive inoculation and should be kept isolated as long as possible.

Patients affected with active tuberculosis receive clinical treatment at home and in the sanatoriums. When feasible, provision should be made in the dispensaries for pneumothorax treatment. The dispensaries should preserve their character of preventive institutions, after the pattern conceived by Philippe and Calmette. Patients in whom slight toxic symptoms have been discovered can be treated at home or in the dispensary. Patients who, it is thought, will recover their earning capacity within six months are sent to the sanatorium. Patients who present little chance of a complete recovery or a prolonged amelioration are candidates for the retreats, organized after the plan adopted in Norway.

Dr. Dabrowski of Warsaw emphasized the immense importance of the dispensary and approved the proposal to organize dispensaries in the hospitals. His paper was illustrated by a series of interesting slides.

Dr. Fiszer of Zakopane discussed a series of individual cases that required sanatorium treatment and gave some interesting details on present methods of treatment.

On the third and last day, Dr. Zychoń presented a paper on the advantages of an Alpine climate for the treatment of tuberculosis. Drs. Gaston Poix of France, C. Wroczyński, head of the Polish Red Cross Society, and G. Babecki of Warsaw presented papers on the rôle of social insurance in the crusade against tuberculosis. Dr. Wroczyński traced the historical development of the social insurance movement and explained the part played by the health insurance societies (*krankenkassen*) in the fight against tuberculosis. Dr. Poix, who read a paper on "The Rôle of Social Insurance in France in the Crusade Against Tuberculosis," explained the methods chiefly employed in the crusade against tuberculosis and emphasized the predominant rôle of the dispensary, where pneumothorax treatment is generally applied.

Dr. Babecki read a paper on a proposed merger for the social crusade against tuberculosis, in which he explained the work accomplished by the health insurance society in the domain of the crusade against this disease. The federation of the health insurance societies has appealed to the governmental, communal and private organizations to cooperate in the development of preventive measures. The speaker proposed the organization near large urban centers of colonies for the tuberculous which would be provided with sanatoriums for persons gravely ill, for persons suffering mild attacks, and for convalescents. There would be furthermore day sanatoriums and night sanatoriums, and industrial colonies in which convalescents will be given opportunities to earn their living.

After the presentation of papers, these ten resolutions were adopted without a dissenting vote:

1. The fourth Conference on Tuberculosis appeals to the people of Poland, and it urges it not to diminish its contributions in aid of the crusade against the great social scourge tuberculosis, the extension of which is again becoming more threatening, on account of unemployment and the misery that results therefrom.

2. The fourth conference, taking into consideration the economic condition of the country, as a result of which the sanatoriums are almost empty, advises against the erection of luxuriously equipped sanatoriums and of pseudosanatoriums and expresses the view that hospital-sanatoriums with moderate prices should be organized.

3. The fourth conference makes an appeal to all the governmental, communal and social institutions and to the institutions of social insurance to collaborate in the organization of the crusade against tuberculosis in their respective regions under the form of special associations, taking as an example the association for combating tuberculosis organized at Lodz (Poland).

4. The fourth conference considers it advisable that all the institutions that participate in the crusade against tuberculosis contribute funds for the creation of special colonies for the tuberculous where patients of all classes may find the best conditions for treatment and where patients and convalescents may work without injuring their health or endangering their entourage; whereas, if they were transferred to a different environment and were compelled to work under less favorable conditions, their condition would deteriorate, and, at the same time, they would prove a menace to their immediate environment.

5. The fourth conference, since there is in the Alpine region no secondary school possessing the character of a sanatorium, appeals to the government to supply this need, as soon as possible, by carrying out the plan of the minister of public instruction.

6. The fourth conference decides as follows with relation to the accepted designations for therapeutic institutions for the beneficiaries of social aid: (*a*) A sanatorium is an establishment, under professional management, to which are admitted tuberculous patients who require treatment and in whom the treatment can be expected to give marked and durable results. (*b*) A hospital-sanatorium is an establishment, under professional management, destined for the treatment of tuberculosis under any and all aspects susceptible of treatment, not excluding incurable cases. Such an establishment should have a special service termed "observation and diagnostic service."

7. The fourth conference, having in mind the great importance, in the social crusade against tuberculosis, attaching to prophylactic education, as applied to the younger generation, expresses the hope that the school physicians who have recently been temporarily removed from office, by way of retrenchment, may be reinstated as soon as the economic situation permits.

8. The fourth conference confirms the absolute need of enacting for Poland antituberculosis legislation, and appeals to the organizations concerned to elaborate, as soon as possible, the draft of such a regulation.

9. The fourth conference expresses furthermore these views: (*a*) All agencies of a professional character: general practitioners, dispensaries, hospitals and sanatoriums are authorized, and even under obligations, to interest themselves in the fate of patients and to wage constant warfare against tuberculosis. (*b*) The cost of treatment of the tuberculous patient should not be charged to his account alone, but should be borne in part by government, communal and social institutions. (*c*) Zakopane possesses the climatic conditions requisite for the treatment of tuberculosis. (*d*) A sanatorium with moderate prices for the benefit of the middle class should be erected in Zakopane. (*e*) A central institution should be provided in Zakopane for the study of tuberculosis.

10. The fourth conference expresses the conviction that the restoration of the ministry of public health, abolished several years ago, will not only exert a favorable influence on the advancement of health and hygiene in Poland but will likewise effect, in the long run, a great saving for the state treasury.

NETHERLANDS

(From Our Regular Correspondent)

Jan. 5, 1932.

Accidents Affecting the Circulatory System

The association for the combating of alcoholism has published a brochure on the accidents affecting the circulatory system, occurring in the Netherlands. This brochure may be considered a continuation of that published in 1929. The data collected include the accidents in all the cities, or communes, of more than 20,000 inhabitants (forty-six in all). In these communes there were 28,227 accidents affecting the circulatory system, 262 of which had fatal results, while 1,748 persons received grave, and 5,370 slight, wounds. These figures are higher than those for the previous year.

Accidents Affecting Circulatory System in Seven Communes in 1930

	Total Number of Accidents	Accidents Due to Automobiles	Percentage Due to Automobiles
Amsterdam	7,754	6.275	80.9
Rotterdam	4,830	3.561	73.7
The Hague	3,226	2,695	83.5
Utrecht	1.175	921	78.4
Groningen	1.180	889	75.3
Enschede	602	392	65.1
Leeuwarden	324	218	67.3

Accidents caused by street cars are not included in these figures. In thirty-six communes, 155 accidents affecting the circulatory system were caused by intoxicated drivers.

Postvaccinal Encephalitis

Dr. Josephus Jitta has presented to the permanent committee of the International Bureau of Public Hygiene a communication on postvaccinal encephalitis. In connection with 866,100 vaccinations against smallpox, performed in the Netherlands from 1924 to 1931, there were 186 cases of postvaccinal encephalitis, or 1 case to 4,656 vaccinations, on an average. It should be noted that since May, 1930, no case has occurred, although from May 1 to Dec. 31, 1930, 19,000 vaccinations were performed. The number of vaccinations performed in 1931 has not been announced; but, judging by the quantity of lymph distributed, the number may be estimated at 5,800, so that from May, 1930, to May, 1931, one may assume that at least from 24,800 to 25,000 vaccinations have been performed with not a single case of encephalitis having been noted. It appears so far from the statistics that early childhood is the period least affected. Although the public health service does not state that postvaccinal encephalitis may not occur in the first year of life, nevertheless, in a comprehensive circular, it advises physicians to vaccinate children during the first year, preferably between the ages of 3 and 6 months. A further factor that has been noted, and is worthy of consideration, is that vaccination at that age causes but little general reaction and yet furnishes adequate protection. The fact that, for the space of a year, no case of postvaccinal encephalitis occurred is an indication that the cases of encephalitis are becoming more and more rare.

Accidents and Suicides

In the *Geneeskundige Tijdschrift der Rijksverzekeringsbank* of June, 1931, Dr. Van Lit discusses five cases of suicide (taken from the statistics of a health insurance society) that followed occupational accidents. When a person who suffers an accident commits suicide, it is reasonably certain that there is a relation of cause and effect, Van Lit stated. The first example that he cited was the case of a workman, aged 50, who had resumed his work after having suffered a fracture of the wrist, for which he had been allowed 50 per cent of disability. As he found himself awkward about his work, by reason of his injury, it seemed to him that he would never be able to work properly again. Then it was that thoughts of suicide came into his mind. The second case concerned a telephone operator, aged 29, who had suffered a compound fracture of the right leg and a fracture of the patella. Following the accident, mental disturbances were likewise observed. The patient committed suicide. It was found that he had suffered before the accident from psychopathic disturbances but that the accident had aggravated his mental condition. That was likewise the case in the third example cited, that of a boatman, aged 38, whose right thumb was about to be amputated. He fled and committed suicide. The fourth case belongs to the same category as the first. It concerned a lighterman who had suffered a fracture of the cuneiform bone without luxation. He was allowed 50 per cent disability but it seemed to him, likewise, that he would never be able to work properly, so he ended his life. The fifth case was entirely different. An engineer had suffered an injury of the right arm. Five weeks later, he committed suicide. It was found that he had already been an inmate of a psychopathic institution and likewise that he was wanted by the Belgian police for moral delinquency. In this case, it is certain that his injury alone did not lead to his suicide.

Report of Radiotherapeutic Institute

In the annual report for 1930, issued by the Radiotherapeutic Institute of Rotterdam, the medical director gives a detailed account of the method of treatment in cancer of the uterus. From his study on the combined treatment with surgery and radiology, he reached the following conclusions: 1. The value of prophylactic irradiation in its present form is as yet uncertain. Consequently, one has not the right to make an absolute demand for the application of this method. That can be done only when an increasing number of patients treated in that manner shall show that this treatment improves the state of health. 2. Preliminary surgical treatment, by means of electrocoagulation, encounters the same objections. In the case of conditions fairly well advanced, it may aid the radiologic treatment. When the development of the tumor is still in the beginning stage, it can be replaced by the application of radium needles. 3. The radical operation, following the preliminary ray treatment, is advisable in all cases in which the period of the first onset has passed; also in the grave cases when, of course, the ray treatment has improved the condition temporarily and has thus prepared the way for the operation. The radical operation is to be recommended likewise when the preliminary treatment with rays appears to have affected the clinical cure. The cure may, however, be only apparent; for the cancer cells that have escaped the fatal action of the rays may at any moment provoke a recurrence. At the institute, 239 patients affected with cancerous tumors have been treated, and in 121 a satisfactory result was achieved, while in 69 no results were obtained.

THE UKRAINE

(From Our Regular Correspondent)

Odessa, Jan. 24, 1932.

The Institute for First Aid

Before the revolution, the Odessa station of first aid existed, as the majority of such establishments, by means of philanthropic donations. Even before the revolution a number of stations ceased working because of the want of means; the Moscow station did not work from 1911 till 1917, and the Kiev station several times ceased its work only to resume it again. Under the soviet régime this situation has changed. The first aid stations, which were placed under the supervision of the commissariat of public health, received a solid material basis. The number of stations increased. At present there are sixteen stations in the Ukraine, three times more than existed before the revolution in all Russia. Every town with a population over 50,000 has its own station of first medical help. The Odessa station from the day of its foundation, April 20, 1903, has been open continuously. Special means for transportation and a medical and technical staff guarantee that aid will be administered promptly. Not more than half a minute elapses from the moment of the telephone call for help to the moment of the car's departure. In four minutes, on the average, the motor-car arrives at the place of the accident. Every motor-car is equipped with three boxes, one with surgical instruments for urgent aid and with dressing material, another with antidotes and instruments for lavage of the stomach, and a third with an apparatus for the injection of saline solution. In an average time of four minutes the patient receives at the place of the accident a transfusion of sterile saline solution. In every car there is oxygen and carbon dioxide, for purposes of resuscitation.

Suicides in Odessa

Period	Years	Workers, Per Cent	Employees, Per Cent	Others, Per Cent
Before the imperialist war....	1903-1914	40.6	39.8	19.6
During the imperialist war...	1914-1917	34.3	43.9	21.8
Revolution period	1917-1918	25.1	51.6	23.3
Civil war, famine, intervention	1918-1922	11.0	55.0	34.0
Reconstructive period	1922-1931	23.6	15.4	61.0

The work of the station was demonstrated in 1911 at the hygienic exhibition in Dresden, where the station received a diploma and the Esmarch medal. During its existence the Odessa first aid station has registered about 167,259 visits. It has become popular. From its material the station organized a scientific museum, the aim of which is to popularize and develop first aid. The material is divided into twelve departments. Great interest is shown in the department of traumatism, especially suicides. The material on the question of suicides is the largest collection in Europe. It contains about 10,000 detailed records of suicides in which questions of age, social conditions, education, place, means of suicide and motives are mentioned. These cards cover twenty-eight years. It is interesting to note the influence of social conditions on suicide. The number of suicides is diminishing every year, particularly among the working class; the number in the group of "others," on the contrary, is increasing.

A thorough investigation in the field of administering first aid is going on. The museum has worked out lists of poisons and antidotes and toxic gases. These lists are now used in all the dispensaries and stations of first medical aid in the Ukraine.

Death of Professor Golovin

The death of Prof. Serge Selivanovitch Golovin, a prominent Russian ophthalmologist, was reported, April 28, 1931, from coronary thrombosis. He was born in 1866 in Bolchov and graduated in 1889 from the Medical Faculty of the Moscow University. He was invited to join the clinic of eye diseases of the Moscow University as an assistant. In 1895 he was made lecturer in ophthalmology. In 1903 he was elected professor of ophthalmology at the Odessa University. He remained at Odessa eight years. In 1911 he became professor of ophthalmology at the Moscow University. Professor Golovin made many contributions to ophthalmology. He offered a cytotoxic hypothesis on the etiology of sympathetic ophthalmia and cataract, and a hypothesis of the vascular origin of glaucoma. He introduced an osteoplastic operation for empyema of the frontal sinus which is known the world over; also the ligation of the upper orbital vein as treatment of pulsating exophthalmos. He invented the roentgenographic method for detecting foreign bodies in the eye, and retrobulbar diaphanoscopy.

Professor Golovin wrote twelve monographs, all of which brought new data in the field of ophthalmology. He published "Clinical Ophthalmology" in 1924 and "Ophthalmotonometrical Examinations," the classic on statistics of blindness in Russia, in 1910. He was one of the founders of the Moscow Ophthalmologic Society, an honorary member of many Russian ophthalmologic societies, and a member of several international congresses and foreign societies. He founded a Russian ophthalmologic school and had many brilliant pupils. He wrote over 100 scientific works, many of which are printed in foreign languages. For Prof. S. S. Golovin's forty year jubilee of his medicoscientific work, the *Russian Ophthalmologic Journal* issued a special number. His name was known through all the world, particularly in the United States.

Marriages

Robert Church Knott, Sioux City, Iowa, to Miss Catherine Peck of Sioux Falls, S. D., January 18.

George A. Hennies, Chester, S. C., to Mrs. Elizabeth Bennett Atkinson of Holly Hill, February 10.

Charles Allen Perera, New York, to Miss Ruth Hoopes Brinton of Haddonfield, N. J., February 20.

Walter D. Higgins, Peabody, Mass., to Miss Alma Edith Knowles of North Andover, Nov. 28, 1931.

Benjamin G. Broghammer to Miss Lucille Murphy, both of Cedar Rapids, Iowa, January 14.

Benjamin Lynn Bridges, Ellaville, Ga., to Mrs. Ruth Scott Williams in Atlanta, February 9.

Ernest M. Tapp, Jr., to Miss Marjory McIntosh, both of Chillicothe, Ohio, Nov. 26, 1931.

Sidney S. Smith, Jr., to Miss Melissa Browne, both of Raleigh, N. C., Feb. 6.

Esther Cohen to Mr. Nathan M. Smolens, both of Philadelphia, Dec. 4, 1931.

Deaths

Willy Meyer ⊕ New York; University of Bonn, Germany, 1880; emeritus professor of surgery, New York Post-Graduate Medical School and Hospital; professor of clinical surgery, Woman's Medical College, New York, 1886-1892; member of the American Surgical Association, American Association for Thoracic Surgery and the American Urological Association; fellow of the American College of Surgeons; consulting surgeon to the Lenox Hill, New York Post-Graduate, New York Skin and Cancer and Montefiore hospitals, Hospital for Joint Diseases, New York Infirmary for Women and Children and the Glens Falls (N. Y.) Hospital; author of a recently published book on cancer; aged 73; died, February 25, of heart disease, immediately following a meeting of the New York Surgical Society, which he was attending.

George Clymer Stout ⊕ Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1891; secretary of the Section on Laryngology and Otology, American Medical Association, 1900-1901, and member of the House of Delegates in 1902; member of the American Laryngological Association, and fellow of the American College of Surgeons; veteran of the Spanish-American War; consulting laryngologist and aurist to the Presbyterian Hospital; aged 69; died, January 27, in Ventnor, N. J., of heart disease.

Austin O'Malley, Philadelphia; Georgetown University School of Medicine, Washington, D. C., 1893; instructor of bacteriology at his alma mater, 1893-1895; professor of English literature, Notre Dame University, 1895-1903; author of "Thoughts of a Recluse," "Essays in Pastoral Medicine," and other books; aged 73; died, February 25, in St. Agnes' Hospital, of uremia and arteriosclerosis.

James Monroe Watkins, Troy, Ala.; Vanderbilt University School of Medicine, Nashville, Tenn., 1894; member of the Medical Association of the State of Alabama; member of the Alabama Board of Censors; past president of the Pike County Medical Society; physician-in-chief of the Alabama Baptist Orphanage; aged 61; died, January 25, in a hospital at Montgomery, of coronary occlusion.

Jeremiah Black Clayton ⊕ Colonel, U. S. Army, retired, Corning, Calif.; University of Maryland School of Medicine, Baltimore, 1893; entered the army as an assistant surgeon in 1897 and was promoted through the various grades to that of colonel in 1917; was retired in 1930 for disability in line of duty; aged 59; died, February 2, of chronic endocarditis and bronchopneumonia.

Abraham Albert Levine, Mount Vernon, N. Y.; Fordham University School of Medicine, New York, 1917; member of the Medical Society of the State of New York; served during the World War; on the staff of the Bikur Cholin Convalescent Home for Greater New York; aged 42; died, January 30, of acute dilatation of the heart and myocarditis.

Alfred F. White, Flovilla, Ga.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1892; member of the Medical Association of Georgia, and the state board of medical examiners; past president of the Butts County Medical Society; aged 76; died, Dec. 24, 1931, in a sanatorium at Atlanta, of suppurative pancreatitis.

Mallie Adkin Clark ⊕ Macon, Ga.; Bellevue Hospital Medical College, New York, 1890; fellow of the American College of Physicians; past president of the Medical Association of Georgia; formerly trustee and member of the faculty of Mercer University; aged 65; died, February 6, of myocarditis and endocarditis.

Frederick Andrew Jackson, Salida, Colo.; Denver College of Medicine, 1888; member of the Colorado State Medical Society; formerly on the staff of the Denver and Rio Grande Western Railroad Hospital; aged 67; died, January 22, in St. Joseph's Hospital, Denver, of cardiovascular renal disease.

Edward Michael Burns, Poughkeepsie, N. Y.; College of Physicians and Surgeons in the City of New York, 1894; member of the Medical Society of the State of New York; aged 60; on the staff of St. Francis Hospital, where he died, January 31, of carcinoma of the stomach.

Robert Earl Higdon, Brookhaven, Miss.; Tulane University of Louisiana School of Medicine, New Orleans, 1896; member of the Mississippi State Medical Association; aged 59; on the staff of the King's Daughters' Hospital, where he died, January 24, of acute nephritis.

⊕ Indicates "Fellow" of the American Medical Association.

Harold Main Vango, Edmonton, Alta., Canada; McGill University Faculty of Medicine, Montreal, Que., 1923; associate professor of medical jurisprudence and assistant professor of pathology, University of Alberta Faculty of Medicine; aged 36; died, Dec. 29, 1931.

Frederick Herbert Massecar ⊕ New York; University of the City of New York Medical Department, 1884; clinical visiting physician on the tuberculosis service, Harlem Hospital; aged 70; died, February 2, at Waterford, Ont., Canada, of myocarditis.

Warren Gray Sawyer, Madison, Maine; Medical School of Maine, Portland, 1884; member of the Maine Medical Association; formerly member of the state legislature and chairman of the board of health of Madison; aged 76; died, Dec. 16, 1931.

Frederick Nicholas Henry, Detroit; Medical Faculty of Trinity University, Toronto, Ont., Canada, 1892; Victoria University Medical Department, Coburg, Ont., 1892; aged 64; died, January 15, in the Grace Hospital, of diabetic gangrene.

Joseph John Scholtes, Sinking Spring, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1920; on the staff of the Homeopathic Medical and Surgical Hospital, Reading; aged 33; died, January 24, of pneumonia.

Gottlob Hartung, Cullman, Ala. (licensed, Alabama, 1892); member of the Medical Association of the State of Alabama; past president of the Cullman County Medical Society; aged 88; died, Dec. 17, 1931, of cerebral hemorrhage.

Roelf Barkema, Patton, Calif.; University of Groningen Faculty of Medicine, Groningen, Netherlands, 1923; member of the California Medical Association; aged 37; died, January 2, of peritonsillar abscesses and septicemia.

Michael Calvin Dinger ⊕ Morrisdale, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1905; aged 55; died, January 10, at the Clearfield (Pa.) Hospital, of peritonitis, following an operation for appendicitis.

James Wesley Tucker, Lindsay, Okla.; Vanderbilt University School of Medicine, Nashville, Tenn., 1892; member of the Oklahoma State Medical Association; aged 71; died, January 21, of chronic myocarditis.

John Vance Greene, San Diego, Calif.; Kansas City Medical College, 1897; member of the California Medical Association; aged 59; died, Dec. 24, 1931, of diffuse arteriosclerosis and coronary occlusion.

Edwin Blair Hanna ⊕ York, Neb.; Chicago Homeopathic Medical College, 1900; member of the city council; on the staff of the Lutheran Hospital; aged 63; died suddenly, January 5, of cerebral hemorrhage.

Malvin V. Replogle, Bryan, Ohio; Starling Medical College, Columbus, 1894; member of the Ohio State Medical Association; for ten years health officer of Williams County; aged 61; died, Dec. 31, 1931.

Samuel R. Harbin, Canton, Ga.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1898; member of the Medical Association of Georgia; aged 59; died, January 26, of carcinoma of the bladder.

Jeremiah P. Worsham, Barry, Texas; Southwestern University Medical College, Dallas, 1904; member of the State Medical Association of Texas; aged 60; died, Nov. 13, 1931, in a hospital at Dallas.

Elna Cicillia Bjork, San Diego, Calif.; Grand Rapids Medical College, 1900; aged 73; died, Nov. 13, 1931, in the San Diego County Hospital, of lobar pneumonia and cardiovascular renal disease.

Henri Lambert, Brunswick, Maine; School of Medicine and Surgery of Montreal, Que., Canada, 1906; member of the Maine Medical Association; aged 50; died, Dec. 30, 1931, of carcinoma of the liver.

John G. Chambers, Sr., Birmingham, Ala.; University of Nashville (Tenn.) Medical Department, 1898; aged 58; died, February 6, in the Norwood Hospital, of arteriosclerosis and subacute cholecystitis.

Henry Hall James, Jr., Detroit; Detroit Homeopathic College, 1910; member of the Michigan State Medical Society; aged 51; was found dead in his garage, January 24, of carbon monoxide poisoning.

Edward Fowler Hurd, New York; College of Physicians and Surgeons in the City of New York, 1883; member of the Medical Society of the State of New York; aged 70; died, Dec. 26, 1931.

James Alberdean Young, Britton, Okla.; College of Physicians and Surgeons, Keokuk, Iowa, 1894; aged 70; died, Dec. 18, 1931, at the home of his daughter in Oklahoma City, of heart disease.

John D. Lindores ⊕ Stevens Point, Wis.; American Eclectic Medical College, Cincinnati, 1887; on the staff of St. Michael's Hospital; aged 72; died, January 27, of pernicious anemia.

Barton Lincoln Baker, Los Angeles; Hahnemann Medical College and Hospital of Philadelphia, 1887; aged 71; died, Dec. 10, 1931, of carcinoma of the stomach and arteriosclerosis.

John Walter [illegible] th, Miss.; Memphis (Tenn.) Hospital [illegible] aged 50; died, January 9, in the Col [illegible] of lobar pneumonia.

Henry C. Miller, Greentown, Ind.; Kentucky School of Medicine, Louisville, 1883; member of the Indiana State Medical Association; aged 82; died, January 14, of arteriosclerosis.

William Campbell Allen, Morning Sun, Iowa; State University of Iowa College of Medicine, Iowa City, 1881; aged 75; died, January 4, in Long Beach, Calif., of angina pectoris.

Frank R. Morath, Columbus, Ohio; University of Wooster Medical Department, Cleveland, 1878; aged 74; died, January 16, in the Masonic Home, Springfield, of arteriosclerosis.

Horatio Page Gatchell, Jr., Los Angeles; Hahnemann Medical College and Hospital, Chicago, 1875; aged 84; died, Nov. 29, 1931, of cerebral hemorrhage and influenza.

Adolpho Alfonso Luria, Chicago; College of Physicians and Surgeons of Chicago, 1895; aged 64; died, February 5, of chronic nephritis, myocarditis and arteriosclerosis.

Loring Sawyer Lombard, South Portland, Maine; Medical School of Maine, Portland, 1893; member of the Maine Medical Association; aged 61; died, January 10.

Henry North Sloan, Ninety Six, S. C.; University of South Carolina Medical Department, Columbia, 1869; Civil War veteran; aged 84; died, Dec. 25, 1931.

John Henry Gaines, Newport, Vt.; University of Vermont College of Medicine, Burlington, 1884; aged 76; died, January 10, in Bradenton, Fla., of uremia.

Hugh Harrison Conroy, Pasadena, Calif.; Louisville (Ky.) Medical College, 1891; aged 66; died, Dec. 14, 1931, of tabes dorsalis and chronic interstitial nephritis.

Archibald Lawson, Greensboro, Ala.; University of the City of New York Medical Department, 1876; bank president; aged 79; died, January 11, of smallpox.

Daniel Harris Squires, Ashville, Ohio; Columbus Medical College, 1880; also a druggist; aged 81; died, January 4, in Sarasota, Fla., of dilatation of the heart.

Bernard Aloysius McDermott, Omaha; Northwestern University Medical School, Chicago, 1903; aged 52; died, January 13, in St. Catherine's Hospital.

Joseph Edward Rogers, Rocksprings, Texas; College of Physicians and Surgeons, Memphis, Tenn., 1907; aged 62; died, Dec. 16, 1931, of heart disease.

Margaret Vaupel Clark, Long Beach, Calif.; Hahnemann Medical College and Hospital, Chicago, 1893; aged 78; died, January 2, of cerebral hemorrhage.

Greene Warren McConathy, Eads, Tenn.; University of the South Medical Department, Sewanee, 1909; aged 47; died, Dec. 15, 1931, of heart disease.

James Harrison Clark, Pacific Grove, Calif.; Bellevue Hospital Medical College, New York, 1872; aged 90; died, Nov. 11, 1931, of senility.

Earl Harlan, Harrison, Ohio; Medical College of Ohio, Cincinnati, 1898; aged 60; died, Dec. 25, 1931, of a self-inflicted incised wound.

Liston B. Johnson, Georgetown, S. C.; Baltimore Medical College, 1897; aged 57; died, January 2, in Fort Leavenworth, Kan., of pneumonia.

Gordon Hall Rutherford, Chatham, Ont., Canada; University of Toronto Faculty of Medicine, 1927; aged 31; died suddenly, January 4.

John F. Costello, Howard, Kan.; Columbus Medical College, 1880; aged 79; died, January 14, of cardiovascular renal disease and uremia.

Hollis L. Courtney, Tulsa, Okla.; Ensworth Medical College, St. Joseph, Mo., 1907; aged 62; died, Dec. 16, 1931, in a local hospital.

William M. Walker ⊕ Boston; Tufts College Medical School, Boston, 1894; aged 66; died, January 29, of lobar pneumonia.

Edwin A. Hecker, New Madison, Ohio; Columbus Medical College, 1878; aged 81; died, January 26, of heart disease.

Henry Illoway ⊕ New York; Miami Medical College, Cincinnati, 1869; aged 84; died, January 15, of uremia.

Correspondence

INTRAVENOUS INJECTION OF DEXTROSE SOLUTIONS

To the Editor:—I am writing you on account of my astonishment in reading the editorial concerning the "injection" intravenously of dextrose solution (THE JOURNAL, Dec. 12, 1931). I had thought that that method had long since given place to the continuous infusion at the physiologic rate of delivery.

A rich experience has taught me that the objections which you mentioned in your editorial are entirely obviated by the adoption of this more rational procedure, mention of which was entirely omitted in your editorial.

G. A. HENDON, M.D., Louisville, Ky.

To the Editor:—May I suggest that your editorial comments on intravenous injections of dextrose as a therapeutic procedure in the Dec. 12, 1931, issue of THE JOURNAL are perhaps more critical than the facts of the investigations referred to by you may warrant.

So general is its use that great quantities of dextrose solution in various degrees of concentration are being given in hospitals and in homes daily without any unfavorable reactions. In many clinics, reactions of any such type are practically unknown.

Nevertheless the tendency of human nature seems to be to place the blame for any reaction that does occur on the fact of its being a dextrose injection, until the term "glucose reaction" has actually come to be a poor alibi in many instances for failure to observe the fundamental rules of the procedure.

A review of the studies on which your editorial is based shows that Stuter and Lang (*Arch. f. exper. Path. u. Pharmakol.* **154**:50, 1930.) found their most significant changes in the chemical examination of the blood following dextrose injections, as you pointed out, in patients with cardiac decompensation, a condition to which certain such changes are common from the disease itself. In the fatal case reported by Askey and Hall (*California & West. Med.* **32**:394 [June] 1930) appears the significant statement that "the resident physician was ordered to give the patient, slowly, 1,000 cubic centimeters of 10 per cent glucose solution intravenously," so that no specific information as to the velocity of the injection is available. One may safely assume that the average intern's interpretation of "slowly" will not reach two hours, which by actual computation is the minimum time to be consumed for such an injection (1,000 cc. of 10 per cent solution) to an average adult at 0.8 Gm. per kilogram of body weight per hour.

This may have been one of the velocity reactions described by Hirshfeld, Hyman and Wanger (*Arch. Int. Med.* **47**:259 [Feb.] 1931), or may have been from the amount of the dextrose being excessive (Titus and Lightbody: Therapeutic Dose of Dextrose, *Am. J. Obst. & Gyn.* **18**:208 [Aug.] 1929), causing an overstimulation of the pancreas and endogenous hyperinsulinism (Thalhimer, Raine, Perry and Buttles: Effect of Injections of Dextrose and of Insulin and Dextrose on Blood Sugar, THE JOURNAL, Aug. 7, 1926, p. 391). In this connection it is significant that this reaction occurred as those from hyperinsulinism do, not during but after the injection. It is of course possible that thrombosis and embolism resulted from the injection as the authors suggest, but this is fortunately rare in the total of all injections being given. The three cases of Ylanan (*J. Philippine Islands M. A.* **10**:440 [Oct.] 1930), which you cite as further examples of death from dextrose injections, are obviously deaths from (1) dextrose in "old, standing, distilled water, which most likely was contaminated, the solution boiled and golden yellow in color, not clear, and caramelized"; (2) from dextrose in "rain water as the solvent . . . boiled . . . and caramelized"; (3) from a dextrose solution "prepared by a local pharmacist, . . . made from impure glucose dissolved in distilled water several months old, . . . boiled, turbid and yellow." These were not "glucose reactions" but "carelessness reactions."

Obviously, if a therapeutic measure which has proved so generally useful in so many conditions is to be condemned because bad results follow faulty technic, then we should discard nitrous oxide anesthesia, for example, because of an occasional bad result from a technical error, or never give a hypodermic injection because a dirty one causes an abscess.

If dextrose solutions are properly prepared and properly given, reactions are almost entirely avoidable (Titus and Dodds: Causes and Preventions of Reactions from Glucose Injections, *Am. J. Obst. & Gynec.* **14**:181 [Aug.] 1927). They should not be made or given by any one who does not know this.

A pure dextrose, in freshly distilled water, properly sterilized, given no faster than at the physiologic rate, heated instead of cooling, and in not more than the therapeutic dose, will seldom give anything but beneficial results when properly indicated.

Bizarre suggestions such as that which you cite of the intravenous injection of raw orange juice are too absurd to be discussed, and the injections of sucrose which are referred to likewise have little in common with dextrose.

Please do not misconstrue what I have written as indicating disapproval of your timely editorial. Its note of warning is sorely needed as a brake on our enthusiasm. I felt merely that the discreditable causes for some of the more outstanding of the bad results had not been sufficiently emphasized, whereas more stress than necessary seemed to have been placed on the more uncommon causes of reactions following dextrose injections.

J. STUART LAWRANCE, M.D., Philadelphia.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

BENIGN HYPERTENSION

To the Editor:—What is the significance of an increase in the diastolic pressure and an increase in the systolic pressure with a negative urinary examination and negative chemical examination of the blood in a patient, aged 50. The blood pressure is 180 systolic and 125 diastolic. This is a rather broad question, of course, but I would appreciate your discussion of it. Please omit name.

M.D., North Carolina.

ANSWER.—A rise in blood pressure of the type described would probably fall in the group of primary or benign hypertension. If, as is usual, in this condition it has existed over a period of several years at least, there are some secondary changes usually present. The heart will show moderate left ventricular enlargement, and the palpable arteries a thickened wall with some tortuosity, but without the beading more characteristic of the senile type of arteriosclerosis. Roentgen examination may show patchy calcification of the vessels. There are usually definite arteriolar changes as well. These may be shown clinically by examination of the fundi, in which the arteries are narrowed, show the so-called copper wire reflex, and definitely indent the veins where they cross or come in close contact. The same arteriolar changes occur in the kidney and, if extensive, may involve some of the glomeruli in hyaline degeneration and sclerosis. Slight albuminuria may occur but usually does not. The available tests of kidney function are not sufficiently sensitive to measure the amount of glomerular damage unless the disease process runs a course of many years and the arteriolar changes are of extreme grade. This arteriolosclerosis may be demonstrated by biopsy elsewhere in the body.

The etiology is obscure. The origin of the condition is probably functional and the organic vascular changes are a secondary response to the increase in pressure. This has not been proved but seems the most likely hypothesis.

The course is long, and with a pressure no higher than that mentioned at the age of 50, if the vascular system is competent, the outlook is good. The complications that arise are, first, cardiac failure, and, second, cerebral hemorrhage or thrombosis. Disease of the coronary arteries may enter the picture. If vascular failure does not occur and the patient lives sufficiently long, renal impairment may become evident. The pathologic terms applied then to this condition are primary contracted kidney, arteriosclerotic kidney or benign nephrosclerosis.

Blood pressure readings in such a patient taken frequently show a well marked fluctuation with or without treatment. They respond, by rising and falling, to evironmental changes in much the same way as a normal individual will. The systolic-diastolic levels usually retain the same approximate relationship. A sudden marked drop, especially with a decrease in pulse pressure, usually is indicative of myocardial impairment or coronary disease.

If the functional element is still active there may be an appreciable fall as the result of treatment, especially relaxation, rest, a normal diet, weight reduction if needed, and correction of faulty habits. Drug therapy is more or less uncertain and unsatisfactory. The best results are obtained by corrective measure, but no permanent marked fall in pressure is to be expected if anatomic changes are well advanced.

EPICONDYLITIS, OR OSGOOD'S "TENNIS ELBOW"

To the Editor:—I have a patient, a painter by trade, who gives a history of falling and hurting his right shoulder and arm. He complains of a severe pain in the right elbow, mostly in the region of the external epicondyle. He has much pain at night. He cannot use his hand for grasping anything, even an empty cup, so intense is the pain. On examination I found the elbow joint free for motion and painless while moving. Roentgenograms are negative. There is much tenderness in the region of the external epicondyle. The pain seems to be a real one; i. e., it seems to me that the patient really has it. It has been suggested to me that this condition resembles a typical case of Osgood's "tennis elbow" or external epicondylitis. May I ask you to inform me what are the typical signs of epicondylitis? Does my case seem to you to be one of that kind? What can you suggest for therapy? Where can I find a description of this condition? The circumference of the right arm in the region of the elbow is from 0.5 to 0.75 cm. greater than that of the left arm.

Judah Minkin, M.D., Bronx, N. Y.

Answer.—The description would place this case immediately in the group considered under the term "tennis elbow," or external humeral epicondylitis. The condition called tennis elbow is of fair frequency as a cause of disability of the elbow. This condition has been variously ascribed to muscular, bursal, periosteal, ligamentous and synovial disturbances. The radiohumeral bursa lies immediately distal to the external epicondyle deep to the common origin of the extensor group and between this and the radiohumeral joint.

Trethowan believes that tennis elbow is always a traumatic synovitis of the radiohumeral joint. He does not believe that sepsis is a factor, as his eight patients were all cured by simple removal of the fringes. Ogilvie believes that the condition occurs not only in tennis players but also in fly-fishers, golfers, saber fencers and workers with a hammer. He describes a definitely localized tender spot on the outer side of the joint in the region of the external epicondyle. He found that clenching the fist is painful. He believes that the condition is due to a tearing of muscle fibers at their origin from the bone and in some cases to separation of the periosteum.

Mills believes that the condition is similar to a displaced cartilage in the knee caused by a subluxation of the radius or displacement of the orbicular ligament.

Carter in the *Journal of Bone and Joint Surgery* (**7**:553 [July] 1925) describes epicondylitis as a condition characterized by pain originating in and about the lateral humeral condyle, radiating down the forearm and hand, giving rise to disability of varying degrees. The most common pathologic changes are localized periostitis or bursitis.

Golf elbow results from strain of the flexor carpi ulnaris due to forcible abduction of the wrist causing tension on this muscle.

The chief symptoms of tennis elbow are tenderness in the region of the external epicondyle of the humerus and weakness of the muscles of the forearm. There is usually an area of tenderness over the external epicondyle of the humerus or over the head of the radius. Movements of the elbow and movements of the forearm, especially pronation and supination, cause pain referred to the external epicondyle.

The Mills test is carried out as follows: If the wrist and fingers are fully flexed and the forearm is pronated, complete extension of the elbow is restricted and painful.

This condition is referred to in the American literature as Osgood's radiohumeral bursitis or epicondylitis. Osgood's article is one of the best descriptions of this condition. It appeared in the *Archives of Surgery* (**4**:420 [March] 1922). Osgood had the pathologic condition himself and while he was being operated on under local anesthesia he analyzed the pathologic anatomy and wrote a description of it. He described the bursa as the radiohumeral bursa which appears when a split is made in the conjoint tendon of the extensor muscles over the radiohumeral joint. The pathologic changes are thought to be due to an inflammatory reaction in the connective tissue plane located beneath the conjoint tendon of the extensor muscles between this tendon and the tip of the epicondyle, the origin of the supinator radii brevis and the radiohumeral joint.

Various methods of treatment have been advised, including the hot cautery needle, injection of camphor and phenol, immobilization in plaster, immobilization in splints, and operation which consists of removal of the bursa. Strapping the hand, wrist and elbow so that the forearm is midway between pronation and supination is usually helpful. Alcohol injections have been advised. An adhesive plaster dressing has been advised. A similar pad for compression over the bursa has been advised. He places the arm in the attitude previously described, forces it into complete extension, making firm pressure with the thumb over the sensitive spot. In some cases there is an audible click when the resistance gives way.

An excellent description of this condition will be found in the following textbooks:

Jones, Robert; and Lovett, R. W.: Orthopedic Surgery, ed. 2, New York, William Wood & Co., *1929. On page 64 the authors quote from the article by Robert B. Osgood.*
Campbell, W. C.: Textbook on Orthopedic Surgery, Philadelphia, W. B. Saunders Company, 1930, p. 534.
Whitman, Royal: Treatise on Orthopedic Surgery, Philadelphia, Lea & Febiger.

The patient referred to in the query should have repeated roentgenograms made to see whether any other pathologic condition is demonstrable.

CLIMATE FOR PATIENT WITH HYPERTENSION AND BRONCHITIS

To the Editor:—I am writing you for information pertaining to the choice of surroundings for a patient of mine. She is suffering with hypertension (*220/120*), is 65 years of age, and in addition has a chronic bronchitis of long standing. What effects would marked changes of altitude have on this patient and which is the more desirable: Would the salty air of an ocean beach have a deleterious effect? Would she be comfortable in a climate such as exists at Hollywood, Calif.? How should such a patient be treated and what ought one recommend in the way of surroundings?

Florian J. Brylski, M.D., Buffalo.

Answer.—Marked changes of altitude are not desirable in a patient of this type, and in general an altitude of sea level or only slightly above would be best. If changes of altitude are unavoidable, during the time of staying in an increased altitude the patient's activities should be markedly restricted until she is acclimatized. Because of the long standing chronic bronchitis, moisture and dampness of an ocean beach might have some deleterious effects, and in general she would probably be more comfortable in a dry, warm, relatively dust and moisture free climate, such as Arizona, New Mexico, and the desert regions of California. The treatment of such a patient should be directed toward the hypertension and bronchitis, the former being treated by the usual dietary and medicinal measures, including a protein poor, salt free diet; the cautious administration of bromides; phenobarbital and small amounts of sodium thiocyanate; the latter, by sedatives for coughing, and various expectorant mixtures.

PHOSPHATURIA

To the Editor:—I have a patient with a resistant phosphaturia with alkaline urine, to whom I have given diluted nitric acid, acid sodium phosphate and ammonium chloride on different occasions. Would you kindly suggest something that will make the urine acid, as this treatment has failed. *Kindly omit name.*

M.D., New York.

Answer.—In the treatment of phosphaturia it is important to remember that frequently the condition is a result of nervous instability. Treatment then must be directed at the patient's nervous system, for which purpose bromides may well be used. Other measures usually employed in treating neurotic individuals are valuable, such as sufficient rest, hydrotherapy and relief from worries of any sort. If, as so frequently happens in cases of phosphaturia, the patient is in a condition of combined physical and nervous fatigue, proper regulation of life is necessary in order to avoid the strain that produces the fatigue. Not infrequently the mere knowledge of the presence of phosphaturia and the fright incident to seeing a cloudy urine produces a vicious circle. When this occurs, the wise physician will minimize the importance of the phosphaturia rather than pay too much attention to its therapy.

In addition, an acid forming diet low in calcium is advisable. Such calcium-poor foods as meat, bread and the cereal grains should be eaten liberally, and other foods which are rich in calcium, such as milk and green vegetables, should be avoided or at least decreased in quantity. Almost any kind of inorganic or organic acid could be used. For further information regarding the acid forming foods and calcium value of diets, any good textbook on nutrition and diet may be consulted.

TUBERCULOUS INFECTION AND TUBERCULOUS DISEASE

To the Editor:—I should like to have a clear and definite understanding between "tuberculous infection" and "tuberculous disease." Also is tuberculosis usually contracted during childhood, becoming active in early adult life, or is it more likely that it is contracted during early adult life and immediately becomes active? Is it true that childhood infection often establishes immunity and protects during later life? What is known about tuberculous immunity and how can it be proved?

C. V. Little, M.D., Sistersville, W. Va.

Answer.—Tuberculous infection is the entrance into the human body of tubercle bacilli. This may occur by inhalation, ingestion or inoculation. Tuberculous disease is the change occurring in body tissue incidental to the growth and development of tubercle bacilli in such tissue. Tuberculous infection is usually contracted during childhood, especially in child life in urban centers, because of the widespread presence of tubercle bacilli in congested areas. Such infection in childhood may or may not result in primary tuberculosis, which in a majority of instances may heal, leaving a residual disease focus. This may subsequently be activated in early adult life, or a new infection may take place in adult life which may cause disease at that time, without any previous childhood infection. Childhood infection frequently establishes sensitization to tubercle, which is of some value in the fixation of a tuberculous process later in life. It, however, does not offer more than a possible relative immunity. Tuberculosis immunity is only relative. Skin tested with tuberculin has in many instances indicated a marked sensitization by a severe reaction which occurred when such tests were made. This reaction becomes markedly lessened or may disappear temporarily, in the presence of an acute exanthematous disease, and may be reestablished shortly after the exanthematous eruption has disappeared. This has been taken as an indication of temporary destruction of immunity.

THE IMPORTANCE OF DECIDUOUS TEETH

To the Editor:—I have two references from Queries and Minor Notes on the question of extraction of deciduous teeth which contradict each other. A similar problem has come up in my own practice and I should appreciate your advice as to which is correct. A physician from California asked about a child, aged 13 months, who had lost three upper incisor teeth in an accident. The reply was: "The loss of deciduous teeth is not likely to have any influence on the development of the jaw. The development and eruption of the permanent teeth are the factors that determine growth of the jaw. The permanent teeth will probably erupt in proper position and the only disagreeable phase will be the absence of teeth until the child is about 6 years old." Dr. Brakebill asked about his 19 months' old daughter who broke one of her upper incisor teeth. The reply in part was: "One should plan as best one can to meet developmental conditions that will arise during the next six or eight years. The space occupied by the broken tooth should be maintained in order that there will be room for the permanent tooth when it erupts. If this is not done, the adjacent teeth approximate each other and proper growth of the maxilla is retarded." Some details are then given for maintaining the space left by the missing tooth.

M. Bernard Brahdy, M.D., Mount Vernon, N. Y.

Answer.—Attention is called to the conditions of growth of the jaws in the incisor region. At about the third year, the deciduous incisor teeth, upper and lower, begin to move apart and continue to do so until they are lost. During this period, the permanent upper incisors are moving downward (the lowers upward) and they appear to direct the growth of the bone in this region. The permanent central incisors are usually formed in the bone with their edges to the front; they gradually rotate as they approach eruption, and thus cause the bone to grow. This is a part of the process of widening the dental arch. It is not necessary, therefore, that space retainers be used for deciduous incisor teeth that are lost by accident or otherwise before the time when they would be normally shed. If one is lost, the space will gradually become wider.

On either side of the jaw, where the deciduous molar teeth are situated, the conditions are far different. If the deciduous first molar is lost, the deciduous second molar may move forward, reducing the space. If the deciduous second molar is lost before the first permanent molar erupts, the permanent molar will likely erupt too far forward. It is important, therefore, to use space retainers when deciduous molars are lost too early.

FLATFOOT

To the Editor:—I have a patient who has an acute flatfoot of the second degree. He has been wearing arch supports for five months. How long should he continue to wear them before he tries to go without them? Please omit name and address.

M.D., Tennessee.

Answer.—The patient should get away from metal plates as soon as possible, and should substitute any one or combination or all of the following:

1. Adhesive strapping of the foot and ankle.
2. High lace shoes with rigid shank, straight last and round toe.
3. Modified heels and sole of the shoes (the most common being three-eighths inch rise on the inner border of the heel and one-eighth inch rise on the outer border of the sole).
4. Resilient support to be inserted in the shoe for the longitudinal arch.
5. Special longitudinal arch exercises.
6. Massage of the feet twice daily.
7. Contrast foot sprays.
8. Reduction in weight, if there is indication for it.

CONSUMPTION OF RIVER WATER AND INCIDENCE OF DISEASES

To the Editor:—The water supply of this city is taken from the Missouri River about 20 miles below the discharge of the sewage of a city of some 80,000. The water is extremely turbid and is purified in settling tanks with the help of rather ill regulated additions of alum and lime. No filter is used, and the tanks where the impurities are supposed to settle are not covered, so that when a strong wind blows over the hill where the tanks are situated the settling is even less thorough than under more favorable circumstances. After leaving the settling tanks the water gets an ill regulated addition of solution of chlorinated lime, which is supposed to kill all the bacteria. Often the man in charge appears to use an overdose of this disinfectant, so that our drinking water frequently has a decided smell and taste of bleaching powder. Can it be said that the constant use of drinking water that often contains hypochlorites and always a high percentage of chloride and sulphate of calcium is detrimental to the general well being? Is such constant absorption of hypochlorites, etc., either directly or indirectly detrimental to health? Or is there a lowering of the resistance to diseases? Or might it not be said that the energy or vitality used up to counteract the detrimental effect of such water is lacking for other purposes, such as business enterprises or community life? I am considering the possibility of starting a movement with the end of improving the management of the water works. But before doing so I would like to have an authoritative opinion from a recognized organization whether or not my ideas are defensible. Please omit name and city.

A. B., Kansas.

Answer.—From the description of the water supply as given, it would appear that the consumers are not getting adequate protection against water-borne diseases. Some indication of the truth of this surmise might be obtained from a study of the incidence of intestinal infections in the city or even from a study of the typhoid incidence and death rate alone. There is no evidence that waters containing chlorides or sulphate of lime are in any way detrimental to health or that they produce any physiologic strain which might predispose to disease. Neither is there any evidence that the constant consumption of water containing hypochlorites of sodium or calcium in amounts generally used for the treatment of public water supplies is detrimental to health, although it may be disagreeable. No statement is made as to the amount of hypochlorite added or the amount of hypochlorite remaining in the water supply when it reaches the consumer, so that a direct and definite answer is difficult to make. Experience in many parts of the country has shown that the best method of preparing a river water for human consumption is by screening or sedimentation followed by the addition of alum or other coagulant together with some alkali if necessary, filtration and final chlorination. The alum treatment followed by filtration takes care of the greater number of bacteria and the chlorination gives the necessary added factor of safety.

SUCTION OF NASAL SINUSES

To the Editor:—What is the best method of suction in the treatment of nasal sinuses? What technic would you advise? Where can I find a description of the procedure in detail? Please omit name.

M.D., New Jersey.

Answer.—It is difficult to state which method of suction is best. It is possible to apply satisfactory suction by means of a small rubber hand bulb to which is attached either a glass or an aluminum tip. By compressing the bulb and placing the tip in one nostril and tightly closing the other, having the patient say some word with the sound of k in it, at the same time releasing the pressure on the bulb, adequate suction will be provided. Water suction pumps are also convenient and quite powerful. The pump itself is attached to the faucet and the tubing with a nasal tip leads from there to the nose. The degree of suction is regulated by the speed of the water passing through the pump. Electric motor suction pumps are also available for use in offices and hospitals. One method is probably as good as another provided care is taken not to use too powerful a suction for fear of causing bleeding or severe pain. It should be remembered from the physics involved that it is impossible by suction alone to evacuate a cavity that has fluid in its depth unless there is some way of getting air into the cavity so that the fluid is displaced by the air. Using this suction with rather frequent interruptions will allow air to enter the sinus and displace the fluid. When the pus escapes from the sinuses into the nose, suction of course can easily remove it. The hand suction is most easily controlled and is therefore perhaps best from that standpoint. The patient himself can apply suction at home if properly instructed. The subject of nasal suction is discussed in most of the textbooks dealing with the nose and throat, such as those by Ballenger and by Phillips.

CAUTERIZATION OF CERVIX

To the Editor:—Will you be so kind as to describe in detail the office procedure of cauterizing the uterine cervix. I have in mind the cauterization of erosions and old lacerations with the Post cautery, and I can find nothing on the subject aside from the mere mention of the procedure. I am particularly anxious to know the details of the anesthesia necessary—the best anesthetic to use and the local application when the procedure is done entirely under local anesthesia.

J. Marine Kercheval, M.D., Wolcottville, Ind.

Answer.—Cauterization of the cervix usually causes only moderate pain unless it is necessary to use the cautery knife high within the cervical canal. In the latter case a local application of 5 per cent procaine hydrochloride, with or without a preliminary hypodermic injection of 0.008 Gm. (one-eighth grain) of morphine sulphate usually suffices. In patients who are unusually sensitive or in whom the lesion to be treated is difficult of access, nitrous oxide-oxygen anesthesia or infiltration local anesthesia with 1 per cent procaine hydrochloride should be resorted to; some employ ethylene in these cases, but ethylene is hazardous in patients on whom a cautery is used. The technic of endocervical cauterization consists in making four or five radial cuts. Beginning as high as necessary, often at the internal os or above, one pulls the glowing knife blade toward the external cervix, cutting into the mucosa during its withdrawal. Three or four similar additional cuts are usually made.

In the treatment of a raw everted cervix or an erosion of the cervix, multiple parallel anteroposterior cuts are usually made at distances of approximately 0.5 cm apart throughout the affected area.

SUDDEN LOSS OF VISION

To the Editor:—A man, aged 45, came to me because of inability to see with his left eye. One week previously he had gone to an ophthalmologist, who told him that he had a hemorrhage in the left eye. On physical examination I found a moderate obesity, and hypertension of 240/100. Examination of the fundi revealed arteriosclerotic blood vessels but no evidence of any other pathologic changes. No albuminuric retinitis, hemorrhage, optic atrophy or visible pathologic changes of the central arteries were present. Urinalysis showed a moderate degree of fixation (1.012, 1.014, 1.012) but was otherwise negative. The chemical composition of the blood was within normal limits. What accounts for the persistent symptoms in the left eye and absence of other symptoms? What would you suggest for treatment? Please omit name.

M.D., New Jersey.

Answer.—Before any diagnosis can be made, visual fields, both peripheral and central, should be taken, and from these, in all probability, a clue may be derived. There might be a retrobulbar neuritis; there might be sclerosis of the basilar cerebral vessels with pressure on the optic nerves; there might be a cortical hemorrhage; there might be any one or two of a number of conditions that could cause loss of vision. Treatment cannot be suggested until a diagnosis has been made.

ACROMEGALY AND ANTERIOR PITUITARY EXTRACT

To the Editor:—What is the possibility of inducing acromegaly in patients who are receiving large doses of anterior pituitary substance for the treatment of alopecia, as advocated by Bengtson? Please omit name.

M.D., Michigan.

Answer.—While certain investigators have experimentally created acromegaly in animals by massive doses, it is the consensus of specialists in endocrinology that acromegaly is a specific eosinophilic tumor. Overdosage of pituitary by hypodermic or oral usage usually manifests itself by headache or visual disturbance before any detrimental influences are thought to occur.

ECLAMPSIA

To the Editor:—Does a diagnosis of eclampsia imply pathologic changes in the liver? If necropsy does not reveal any pathologic changes in the liver, is one justified in making a diagnosis of eclampsia?

Frederick H. von Hofe, M.D., East Orange, N. J.

Answer.—If a patient has all the clinical (convulsions, hypertension, headaches, edema, visual disturbances, vomiting) and laboratory (albuminuria, cylindruria) evidences of eclampsia, a diagnosis of this disease should be made even if a necropsy fails to reveal the so-called pathognomonic changes in the liver. The exceptions to this rule are the cases in which all the clinical signs and symptoms of eclampsia are present but in which at necropsy an unsuspected etiology for these symptoms is found, such as uremia, cerebral apoplexy, sinus thrombosis or other conditions. Many authorities believe that there are distinctly characteristic changes in the liver in most but not in all women who die of eclampsia. Macroscopically the lesions consist of irregularly shaped red and white areas which arise near the smaller portal vessels and are scattered throughout the entire liver. When the liver is cut across, these areas give the organ a mottled appearance. Microscopically the areas are seen to be necrotic and they involve the periphery of the individual lobules and the portal spaces. The necrosis is due to degeneration which results from thrombosis of the smaller portal vessels. Williams was of the opinion that this lesion does not occur in any disease other than eclampsia, but it is not always present in this disease. Many pathologists, notably Pick, deny that the lesions described are limited to the portal areas and maintain that these changes may be found in any part of the liver.

STRAMONIUM IN PARKINSON'S DISEASE

To the Editor:—Inquiry has been made of me concerning the use of stramonium as a treatment for Parkinson syndrome occurring in a case of epidemic encephalitis. I am more or less unfamiliar with the treatment of this type of case by this drug. Will you please give me such information as you may have on the subject and advise me as to the most suitable preparation of stramonium, the dosage, the length of time administered, habit forming propensities and untoward effects, if any.

C. C. Atherton, M.D., Union Grove, Wis.

Answer.—The preparation most commonly used is tincture of stramonium U. S. P. in doses starting with 1 cc. (15 minims) three times a day, gradually increased by 0.3 cc. (5 minims) to the dose at the end of each week until relief is secured. The relief is temporary only, and the administration must therefore be continued indefinitely. The drug is not habit forming in the sense that there is difficulty in withdrawal. The untoward effects are similar to those of the belladonna alkaloids, particularly dry mouth and disturbance of vision due to dilatation of the pupils and paralysis of accommodation. Discussion of the method of therapy will be found in Cottrell, S. S.: Encephalitic Sequelae and Their Treatment, *American Journal of Psychiatry* **11**:253 (Sept.) 1931.

TREATMENT OF ACNE

To the Editor:—I encounter the usual run of cases of acne in young people that one finds in general practice. I have tried the hygienic measures, the local applications, ultraviolet rays, vaccine (both stock and autogenous), and in fact all the usual methods excepting the x-rays, with little or no success in treatment. The use of gold sodium thiosulphate has been suggested as a possible treatment. If so, how is it used? Are there any suggestions other than those already mentioned that might be tried?

C. F. Watts, M.D., Williamsburg, Iowa.

Answer.—Hygienic measures should be continued. The diet should be restricted, no alcoholic beverages, coffee, tea, cocoa, chocolate or ice cream sodas being permitted. Patients should avoid fried food, hot bread, batter cakes and heavy desserts and should eat little meat and carbohydrates, many vegetables and fruits. They should eat slowly, chew thoroughly, and drink plenty of water. Constipation, if present, should be corrected. These measures, combined with persistent ultraviolet treatment (not exceeding a mild erythema dose) should succeed with most of the superficial cases. For the others, focal infection should be looked for and eradicated if possible. The affected parts should be scrubbed with soap, followed by hot towels for ten minutes, then cold water or an ice rub. Then the skin should be dried and an application of lotio alba fortified with 6 per cent resorcinol should be made. Some of the deep cases will yield only to x-rays. The use of gold sodium thiosulphate is not an approved method of treatment of acne vulgaris. It is in the experimental stage. It is a dangerous drug, causing severe, sometimes fatal, reactions, and its use is not justified in a noninfectious disease that can be cured by less dangerous measures.

Council on Medical Education and Hospitals

COMING EXAMINATIONS

American Board of Obstetrics and Gynecology: Written examinations will be held in nineteen cities of the United States and Canada, March 26. The general, oral and clinical examination will be held in New Orleans, May 10. Sec., Dr. Paul Titus, 1015 Highland Building, Pittsburgh.

Arizona: Phoenix, April 5-6. Sec., Dr. B. M. Berger, 12 N. Central Ave., Phoenix.

California: *Reciprocity.* Los Angeles and San Francisco, March 16. Sec., Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento.

Colorado: Denver, April 6-9. Sec., Dr. Wm. Whitridge Williams, 422 State Office Bldg., Denver.

Connecticut: *Endorsement.* Hartford, March 22. Sec., Dr. Thomas P. Murdock, 147 W. Main St., Meriden.

Idaho: Boise, April 5. Comm. of Law Enforcement, Hon. Emmitt Pfost, Boise.

Illinois: Chicago, April 12-14. Supt., Mr. Paul B. Johnson, Springfield.

Minnesota: *Basic Science.* Minneapolis, April 5-6. Sec., Dr. J. C. McKinley, 125 Millard Hall, University of Minnesota, Minneapolis. *Regular.* Minneapolis, April 19-21. Sec., Dr. E. J. Engberg, 524 Lowry Bldg., St. Paul.

Montana: Helena, April 5. Sec., Dr. S. A. Cooney, Power Block, Helena.

New Hampshire: Concord, March 10-11. Sec., Dr. Charles Duncan, Concord.

New Mexico: Santa Fe, April 11. Sec., Dr. P. G. Cornish, Jr., 221 W. Central Ave., Albuquerque.

Rhode Island: Providence, April 7-8. Dir., Dr. Lester A. Round, 319 State Office Building, Providence.

West Virginia: Charleston, March 22. Sec., Dr. W. T. Henshaw, Charleston.

Wisconsin: *Basic Science.* Madison, March 19. Sec., Prof. Robert N. Bauer, 3414 W. Wisconsin Ave., Milwaukee. *Reciprocity.* Milwaukee, April 6. Sec., Dr. Robert E. Flynn, 315 State Bank Bldg., LaCrosse.

PRELIMINARY REPORT OF SURVEY OF HOSPITALS FOR NERVOUS AND MENTAL PATIENTS IN THE UNITED STATES *

At the annual session of the American Medical Association held at Detroit in June, 1930, the House of Delegates, on the initiative of the Section on Nervous and Mental Diseases, adopted two resolutions relative to the care of patients suffering from nervous and mental diseases. One directed the Trustees to appoint a special Committee on Mental Hygiene. The other directed the Council on Medical Education and Hospitals to make an "investigation of all hospitals caring for mental patients within the next one or two years," in order to obtain "a more accurate knowledge of the situation," and to point out "the need of further developments."

The language of this second resolution describes a task intentionally limited as to time and scope, and preparatory to a larger work whose exact nature the preliminary task would help to determine. No such limits were imposed on the Trustees' Committee on Mental Hygiene, nor was there stated or implied any relationship between the functions of this committee and those of the Council. Four months later, the Council itself requested the Trustees' committee to "serve as an advisory committee to the Council," and, as a result of this action of the Council, the committee has come to be known as the Advisory Committee.

The five men composing the Advisory Committee are all Fellows of the American Medical Association, all well known psychiatrists, and all active participants in the affairs of organized psychiatry and mental hygiene. By virtue of their positions, they represent unofficially the three groups of federal, state and private mental hospitals, and also the private office practitioners, the clinical psychiatrists, and the medical schools. The Council's work in the mental hospital field has been planned and is being carried out in as close association with this committee as possible. At the same time the essential coordination of this work with the other work of the Council has not been forgotten.

In the gathering of information, in all the Council's work with hospitals during the quarter century of its existence, two major procedures have stood the tests of time and accuracy: the questionnaire and the personal visit. The specific task of this report is to make known the results thus far obtained by the use of these two methods.

THE QUESTIONNAIRES

The work was definitely begun, Jan. 1, 1931. In consultation with the Advisory Committee, a questionnaire was prepared and mailed to the 561 institutions for nervous and mental patients listed in the Register of Hospitals. Of the 561 institutions, 416 have returned these questionnaires with the data asked for. While returns from seventeen states are already complete and those from the entire group are approximately 75 per cent complete, the questionnaires are still coming in and a more complete report will be possible at a later date.

In twenty-two states all the government-owned institutions addressed have returned the questionnaires; in each of twelve other states only one hospital has failed, and in each of an additional nine states only two hospitals have failed. That is, in forty-three of the forty-nine states (including the District of Columbia) all the federal, state, county and city mental hospitals except thirty have already returned the questionnaires, and many of these thirty hospitals will return them later. There are six states remaining to be accounted for. In four of these the returns have been between 75 and 80 per cent complete; in the other two the returns are now between 10 and 20 per cent complete.

In twenty-five states, all the private institutions have returned the questionnaires; in each of eight other states only one hospital has failed, and in each of an additional seven states only two hospitals have failed. That is, in forty states all private institutions have made returns except twenty-two, and we know that some of these will respond later. There remain nine states to be accounted for. In all of these the returns to date are between 50 and 75 per cent complete.

THE PERSONAL VISITS

Of the 561 institutions, personal visits have been made to 353. The conditions observed by the visitors can be reported more satisfactorily later, but a few general statements can be made now.

Of the government-owned group, the Veterans' Administration hospitals are on the whole comparatively new and well equipped, have relatively large medical staffs, and apparently give the individual patient good custodial and therapeutic care. Among county and city institutions, the great majority of those visited were found to be custodial in nature without any aspirations to the rank of hospitals. They are usually managed by laymen who are apparently intelligent and humane, interested in their work and carrying it on in a reasonably acceptable manner. The question whether or not these insane asylums, frankly divorced from considerations of therapy, have a rightful place in a modern mental health program is too complicated to be considered in this brief report.

In state hospitals, which are nearly three times as numerous as all federal, county and city institutions, personal contact with administrative heads revealed that overcrowding was almost universal. In several places it had been carried to a most deplorable extreme. Recreation rooms, living rooms and dining rooms had been made into dormitories. Beds had been placed on porches, in hallways, in attics and in basements. The lack of room was in some instances such as to rule out almost all classification on a basis of diagnosis or therapy, the only workable classification being on the basis of temperament; and without proper classification adequate care is impossible.

In several of these state hospitals there were no hospital units, the word hospital being applicable to them only in the broadest sense of the term. Others had no separate receiving units. Some lacked the equipment for giving patients proper diagnostic or therapeutic care. The personnel in many was admittedly inadequate, attendants being both too few and too incapable, and the medical staff being greatly undermanned. In the presence of such conditions no special knowledge or training was required for their discovery; indeed, if it had been required, many of the superintendents made it unnecessary by themselves calling the visitor's special attention to the conditions; the superintendents desired that such conditions be reported, in the hope that such a report might lead to their improvement.

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* Read before the Annual Congress on Medical Education, Medical Licensure and Hospitals, Chicago, Feb. 15, 1932.

Private institutions fall easily into two classes: the sanatoriums and the rest homes (sanatoriums being interpreted as places for therapeutic care while rest homes are merely custodial). Nearly all sanatoriums were found clean, orderly, and apparently well conducted. They return a comparatively large percentage of their patients to active civil life, and they apparently merit the respect and support of the medical profession. While many rest homes meet a real need in a satisfactory way, several others have no adequate medical supervision and their value as medical institutions is nebulous.

The language here employed is not intended to convey the impression that the Council's visitors are sitting in judgment over these institutions. No such purpose is associated with this preliminary survey, and the language of this report describes the kind and amount of work done rather than its quality. The use of the data returned by these visitors as a basis for the rating of institutions for mental patients is an idea that has no place whatever in the program now being carried out.

It would be hard to overemphasize the value of the personal medical contacts that these visits to institutions have made possible. While personal visits have for years been included in the Council's work with hospitals both general and special, in no other group of hospitals has the need of such personal contacts been so evident or the immediate results so gratifying. Visits have necessarily been brief, but the danger of inaccuracies in reports is minimized by the use of the questionnaire, on which a superintendent makes his own report in writing, the superintendent's report and the visitor's report being checked against each other.

Little more need be said now regarding this unfinished task. With 353 visits made, there are some 200 more to be made. With 416 questionnaires already returned, 150 more are still to come in. The data thus secured must then be analyzed and interpreted. This study will be most carefully made, utilizing all the resources at our command. A final report will then be made to the House of Delegates.

New Mexico October Report

Dr. P. G. Cornish, Jr., secretary, New Mexico Board of Medical Examiners, reports 22 physicians licensed by endorsement, Oct. 12, 1931. The following colleges were represented:

College — LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Birmingham Medical College, Alabama	(1914)	Alabama
Chicago College of Medicine and Surgery	(1917)	Illinois
Chicago Medical School	(1930)	Illinois
Rush Medical College	(1915)	Maryland
University of Illinois College of [illegible]	[illegible]	Illinois
Tulane University of Louisiana [illegible]	[illegible]	Texas
Tulane Unversity of Louisiana [illegible]	[illegible]	New York
Baltimore Medical College	[illegible]	Washington
Kansas City Hahnemann Medical College, Missouri	(1914)	Kansas
University of Nebraska Coll. of Med.	(1930)	Nebraska, Washington
National Normal University College of Med., Ohio	(1896)	Texas
Vanderbilt University School [illegible]	[illegible]	Texas
Baylor University College of [illegible]	[illegible]	Texas
Southern Methodist University [illegible]	[illegible]	Texas
Southwestern University Medic [illegible]	[illegible]	Texas
University of Texas School of Medicine	(1911), (1918)	Texas
Univ. of Lausanne Faculty of Med., Switzerland	(1921)*	New York

* Verification of graduation in process.

California October Report

Dr. Charles B. Pinkham, secretary, California Board of Medical Examiners, reports the written examination held at Sacramento, Oct. 20-22, 1931. The examination covered 9 subjects and included 90 questions. An average of 75 per cent was required to pass. Forty-five candidates were examined, 41 of whom passed and 4 failed. The following colleges were represented:

College — PASSED	Year Grad.	Number Passed
College of Medical [illegible]	[illegible]	5
Stanford University [illegible]	[illegible]	4
University of Colora [illegible]	[illegible]	3
Northwestern University Medical School	(1930), (1931)	2
Rush Medical College	(1928), (1929), (1931)	3
Indiana University School of [illegible]	[illegible]	1
Harvard University Medical [illegible]	[illegible]	2
St. Louis University School of [illegible]	[illegible]	3
Creighton University School of Medicine	(1931, 5)	5
University of Nebraska College of Medicine	(1930)	1
Cornell University Medical [illegible]	[illegible]	1
New York Homeo. Med. Coll [illegible]	[illegible]	1
University of Oregon Medic [illegible]	[illegible]	1
[illegible] College of Medicine	(1930)	1
[illegible] ge of [illegible]	[illegible]	1
[illegible] Medic [illegible]	[illegible]	2
University of Manitoba Faculty of Medicine	[illegible]	1
Licentiate of the Royal Coll. of Physicians, England	*(1908)*	1
University of Amsterdam Medical Faculty	(1901)	1
University of Edinburgh Faculty of Medicine	(1918)	1
Irkutsk Medical Institute, U.S.S.R.	*(1923)**	1

College — FAILED	Year Grad.	Number Failed
University of Illinois College of Medicine	(1931)	1
Kentucky University Medical Department	(1904)	1
Washington University School of Medicine	(1929)	1
Univ. of Bordeaux Faculty of Med. and Pharmacy	(1930)*	1

Dr. Pinkham also reports 3 physicians licensed by endorsement of credentials in October, 1931. The following colleges were represented:

College — LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Jefferson Medical College of Philadelphia	(1913), (1923)	U. S. Army
Medical College of Virginia	(1914)	U. S. Navy

* *Verification of graduation in process.*

Michigan October Examination

Dr. Nelson McLaughlin, secretary, Michigan Board of Registration in Medicine, reports the written examination held at Lansing, Oct. 13-15, 1931. The examination covered 14 subjects and included 100 questions. An average of 75 per cent was required to pass. Six candidates were examined, all of whom passed. The following colleges were represented:

College — PASSED	Year Grad.	Per Cent
Northwestern University Medical School	(1931)*	83.7
Johns Hopkins University School of Medicine	*(1929)*	83.8
Michigan College of Medicine and Surgery	(1891)	79
Hahnemann Med. College and Hosp. of Philadelphia	(1931)	83.3
Marquette University School of Medicine	(1931)*	83.7
University of Toronto Faculty of Medicine	(1930)	86.2

Dr. McLaughlin also reports 24 physicians licensed by endorsement from *Aug. 18 to Dec. 18, 1931. The following* colleges were represented:

College — LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
College of Medical Evangelists	(1931)	California, Oregon
Howard University School of Medicine	(1930, 2)	Maryland
Chicago College of Medicine and Surgery	(1917)	Illinois
[illegible] l of Medicine	(1930)	Illinois
[illegible] Medical School	(1931)	Illinois
[illegible] Woman's Medical School	(1897)	Illinois
Rush Medical College	(1928) Colorado, (1929), (1931)	Illinois
University of Illinois College of Medicine	(1926)	Illinois
Indiana University School of Medicine	(1930)	Indiana
State University of Iowa College of Med.	(1929), (1930)	Iowa
University of Kansas School of Medicine	*(1906)*, (1929)	Kansas
Detroit College of Medicine	(1897)	Illinois
Creighton University School of Medicine	(1927)	Nebraska
University of Nebraska College of Med.	(1920), (1923)	Nebraska
Hahnemann Med. College and Hosp. of Philadelphia	(1930)	Penna.
Meharry Medical College	(1929)	Tennessee
Baylor University College of Medicine	(1928)	Texas

* These applicants will receive their M.D. degrees on completion of an internship.

Iowa October Examination

Mr. H. W. Grefe, director, Iowa State Board of Medical Examiners, reports the written examination held at Des Moines, Oct. 20-22, 1931. The examination covered 8 subjects and included 100 questions. An average of 75 per cent was required to pass. Eleven candidates were examined, all of whom passed. Five physicians were licensed by reciprocity in December, 1931. The following colleges were represented:

College — PASSED	Year Grad.	Per Cent
Loyola University School of Medicine	(1931)	91.5,* 92,* 95.6*
Rush Medical College	(1931)	86.9
Sioux City College of [illegible]	[illegible]	75.5
College of Physicians [illegible]	[illegible]	92
[illegible]	[illegible]	94.8†
[illegible]	[illegible]	90.4
[illegible]	[illegible]	91.4
[illegible]	[illegible]	75.5
[illegible]	[illegible]	83.3

College — LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Rush Medical College	(1927) Ohio, (1931)	Illinois
University of [illegible]	[illegible]	Illinois
University of [illegible]	[illegible]	Nebraska

* The M.D. degrees and licenses of these applicants are being withheld [illegible] of an internship.

† [illegible] pending completion of an internship.

‡ [illegible] in process.

Book Notices

Electrotherapy and the Elements of Light Therapy. By Richard Kovács, M.D., Clinical Professor and Director of Physical Therapy, Polyclinic Medical School and Hospital, New York. Cloth. Price, $6.50. Pp. 528, with 211 illustrations. Philadelphia: Lea & Febiger, 1932.

Among the pioneers in the promotion of electrotherapy in the United States is the author of this contribution. The material in the book is the basis of the courses of instruction in this subject given in the extension School of Medicine of Columbia University. The book begins with elementary electrophysics and proceeds from this theoretical basis to the technic of application, indications and contraindications of electrotherapy in various conditions. Like other writers, the author has been disturbed by lack of standardization in nomenclature, apparatus and similar factors to which the Council on Physical Therapy of the American Medical Association has given attention.

The book is divided into four parts—electrophysics, general electrotherapy and diagnosis, the elements of light therapy and applied electrotherapy. In the last mentioned section the use of electrotherapy in dermatology is discussed by Dr. J. J. Eller and its use in diseases of the ear, nose and throat by Dr. Wallace Morrison. The volume is certainly the most systematic contribution on the subject thus far available. It is orderly in arrangement, succinct and sound. It will be useful to practitioners in every field of medicine who avail themselves of the electrical forces, since it explains the apparatus used and the manner of use. It is an intensely practical book and quite up to date. Of special value is the section on electrodiagnosis with excellent tables of motor nerves and muscles which will be of aid to the neurologist and the diagnostician in whose practice electrodiagnostic tests may be frequently employed.

In the section on high frequency and diathermy, Dr. Kovács is again careful to avoid exaggeration and to indicate pointedly the limitations of this method. If there is any one section of the book with which disagreement may develop, it is that having to do with the use of static modalities. In this field there has always been difficulty in separating actual facts from those achieved by the power of suggestion.

The book may be recommended as a scientific contribution of great merit in a field in which there has been much unfortunate exploitation.

The Standard Metabolism of Boys (7 to 18 Years Inclusive). By Einar Bierring. Paper. Pp. 150, with illustrations. Copenhagen: Levin & Munksgaard, 1931.

This presents an extensive investigation involving about 1,000 experiments of the metabolism of 133 male subjects from 7 to 18 years of age. Bierring attempts to determine whether or not children are suited, under the present types of experimental control, for experiments in metabolism and also to throw light on the problem of the general trend of the metabolism during growth.

The study contains a review of the more significant investigations of standard metabolism (defined as the heat production of the fasting and reposing individual) of males under 18 years of age. A comparison of the standard values for the standard metabolism of normal boys, as reported by Du Bois (1917), Benedict and Talbot (1921), Cameron (1925), Bailey (1926), and Boothby and Sandiford (1929), led the author to conclude that "each standard must be considered an isolated whole typical only for the experimental conditions on which it is based." A summary of the experimental work done on the standard metabolism of boys leads to the statement that "the total heat production increases with age, height, weight, and surface area, whereas the heat production per unit of weight and surface area decreases during the interval considered (7-18 years)." The evidence concerning the increase in relative heat production at different periods of growth, e. g., at puberty, is not conclusive.

From a study of the constancy of respiratory quotients in normal healthy boys, the reliability of determinations of surface area by well known formulas and the coefficients of variability of single experimental series and the individual variability of whole series, Bierring concludes that metabolism experiments with boys from 7 to 18 years of age should be of as much clinical value as corresponding experiments with adults. He finds that the total heat production increases with increasing age, weight, height, and surface area. Relative heat production shows a nearly straight-line decrease with increasing age. There is no evidence of an increase in average heat production at the interval 7 to 13 years as found by Kestner and Knipping, at 12 to 13 years as reported by Du Bois, or at the period of puberty (Göttche, Lax and Petenyi). An individual increase in metabolism is found in a group of boys 14 years old and in a few boys 15 years of age (all manifesting signs of puberty) but in no case is the increase more than 13 per cent. Standard values of the standard metabolism of boys from 7 to 18 years of age are given in two tables expressed in terms of total calories referred to weight and calories per square meter, referred to age. The quantitative treatment of the data is thorough and sound. The presentation is scholarly.

Lane Lectures on Pharmacology. By Walther Straub, M.D., Ph.D., Professor of Pharmacology, University of Munich. Stanford University Publications, University Series, Medical Sciences, Volume III, No. 1. Paper. Price, $1. Pp. 87, with 9 illustrations. Stanford University: Stanford University Press, 1931.

The Lane lectures in this monograph were delivered by Professor Straub in April, 1929. A considerable range of subjects was covered: intoxicating drugs, ways to ideal anesthesia, chemistry and biochemistry of digitalis, general pharmacology of heavy metals, and camphor and the modern analeptics. The first lecture contains matters of general and popular interest based on much scientific and historical data, which are interpreted and correlated in interesting ways. The remaining five lectures give the results of the author's researches in experimental pharmacology. Straub's studies on digitalis naturally make his two lectures on this subject the choicest portion of the monograph. The lecture on heavy metals deals with fundamentals in the actions of these agents, including original work on chronic lead poisoning and some new work on the selective localization of uranium. The lecture on anesthesia recognizes the achievement of America in this field and gives a cross-section of the actions of the different types of anesthetic agents, including agents proposed for intravenous anesthesia, such as the barbitals and "Avertin." The lecture on camphor has two purposes: first, the illustration of the German method of instruction, that is, the lecture interspersed with demonstrations, and, second, the unfolding of a scientific problem, which in the particular case is an empiric drug (camphor) with a particular attribute, which is developed into desirable and practical substitutes, with the aid of chemical synthesis and pharmacologic analysis. Throughout these lectures the author easily lives up to a well earned reputation as a master of experimental investigation, who not only has original ideas and uses ingenious experimental devices but also knows how to hold the attention of his audience. In making good use of chemistry and in giving it due credit, and in creating new and useful drugs, Straub readily points out that the final and complete development is achieved pharmacodynamically. In a concluding phrase he tritely remarks, "chemistry experiments and pharmacology investigates." Straub's lectures should prove interesting and profitable reading for practitioners, medical students, teachers and investigators.

Rheumatoid Arthritis and Its Treatment: Studies from the Royal Mineral Water Hospital, Bath. By Vincent Coates, M.C., M.A., M.D., Consulting Physician, Trowbridge and District Hospital, and Leo Delicati, L.M.S.S.A., Resident Medical Officer, Royal Mineral Water Hospital, Bath. Cloth. Price, 6s. Pp. 114, with 12 illustrations. London: H. K. Lewis & Company, Ltd., 1931.

This little book is dedicated to the International League against Rheumatism. The material is based on the studies made at the Royal Mineral Water Hospital, Bath, England. The majority of patients are from the lowest economic level of society. The manual is an attempt to deal almost exclusively with the systemic and local treatments of rheumatoid arthritis, especially in regard to the prevention of contractures. The observations cover a period of several years, but for statistical purposes 100 consecutive cases of rheumatoid arthritis were considered. The book is written entirely from a therapeutic point of view. The authors outline the classification of joint diseases and give a description of the clinical picture of rheumatoid arthritis. Their classification includes infectious arthritis, metabolic arthritis, degenerative arthritis, mixed arthritis, and neuropathic arthritis. They give also a list of the deformities that may occur in the various regions of the body. The writers believe that streptococcal vaccines given over a long period in doses carefully graduated to avoid reaction are helpful when streptococcal immunity is lowered. Sometimes staphylococcal vaccine is useful. Approximation of joint surfaces should be forbidden to any weight bearing joint, in the early inflammatory stage, except in a deep bath. Relaxation in a hot bath is the simplest method of getting a full joint movement daily which is to prevent organization of minute cobweb adhesions. This one full movement of each joint daily should be carried out when the patient is in a relaxed position. Gentle movements and daily massage obviate contracture at the knee. The authors found that local dressings and blisters are the two most useful remedies for the reduction of swelling with heat and wintergreen most useful for the reduction of pain, although a simple application of iodine is often efficacious. A joint should be assessed by the function it is capable of performing and not by its pathologic shortcomings. A roentgenogram is no criterion of the function a joint is capable of performing. Twenty-six case histories are given.

Modern Proctology. By Marion C. Pruitt, M.D., L.R.C.P., F.R.C.S., Associate in Surgery, Emory University School of Medicine. Cloth. Price, $8. Pp. 404, with 233 illustrations. St. Louis: C. V. Mosby Company, 1931.

One wonders why every writer of a new book speaks of proctology as a neglected field. It seems that there are countless books written on this limited subject. With few exceptions, little new has been added. The author devotes considerable space to the anatomy of the rectal area and to methods of examination, and one chapter to a description of methods of anesthesia. In general, the subject matter dealing with diseases of the anus and rectum is well presented. One might ffer with the author in advising retention oil enemas of 10 es instead of much less or in prescribing liquid petrolatum mild purgations to establish regulation of evacuations. o mention is made of the possible rôle of allergy in causation of pruritus ani and of mucous colitis. How much benefit can the oral administration of 0.65 Gm. of bismuth subnitrate or 0.3 Gm. of phenyl salicylate or sulphonated bitumen have in overcoming intestinal fermentation? One cannot become enthusiastic over the descriptions of diseases of the colon as mucous colitis, ulcerative colitis and diverticulitis. They are for from being complete. The sections dealing with operative technic are good. More stress should be laid on postoperative care. There is a profusion of excellent illustrations and the bibliography is extensive.

Arbeitsmedizinische Studien in Nord-Amerika und Süd-Afrika. Von Dr. Franz Koelsch, Professor an der Universität und an der Technischen Hochschule in München. Schriften aus dem Gesamtgebiet der Gewerbehygiene, Heft 37. Herausgegeben von der Deutschen Gesellschaft für Gewerbehygiene in Frankfurt a. M. Paper. Price, 14.50 marks. Pp. 210. Berlin: Julius Springer, 1931.

This is an account of the tour of a German industrial hygienist through portions of the United States and South Africa, visiting some of the principal industrial medical organizations and the persons in charge. The author says in the introduction:

> From the very beginning my interest and endeavors were not limited strictly to the hard and fast question of industrial medicine but included the social and humanitarian interests of the working man in general—his social level, his place in community life, the bearing that conditions in the shop and the wages paid, have on his life and mode of living, the insurance and welfare problem, etc. As all these social aspects involve one another, and to understand them it is necessary to know the particular function of each, so we must first investigate the organized labor conditions of the land in each instance.

Sections are devoted to the lands and peoples visited, their respective wealth and castes, their morale, wages and standards of living, extent of cooperation between the employers and employees, labor organization, opportunities, and the problem of home work, the old worker, the unemployed, employment insurance and welfare, types of plants, quality of fittings and equipment, plant hygiene, welfare of workers, the use of physiology and psychology in proper job placement, the services of the industrial physician, accidents and their prevention, mining, plant executives and plant supervision, medical facilities, the food of the worker in relation to his job, prohibition, organization of program and travel, Johannesburg, gold mining together with its social and hygienic achievements and the labor questions it involves, the problem of silicosis, the organization and function of medical organizations, South Africa and its people, the color question, the caste question, and the general social outlook. To persons in this country the booklet is of worth as an appraisal of industrial medicine in large industries by a well qualified outsider who is familiar with the activities of this type in other countries. Primarily it is designed to furnish information to German physicians and industrial hygienists on industrial medical, hygienic and social conditions in the United States and South Africa.

The Papyrus Ebers. Translated from the German Version. By Cyril P. Bryan, M.B., B.Ch., B.A.O., Demonstrator in Anatomy, University College, London. With an introduction by Professor G. Elliot Smith, M.D., D.Sc., Litt.D., Professor of Anatomy, University College, London. Cloth. Price, $3. Pp. 167, with 16 illustrations. New York: D. Appleton & Company, 1931.

Until the discovery of the Edwin Smith papyrus, the papyrus Ebers was considered the most important ancient medical document available. The new discoveries have not in any way replaced the interest in the Ebers papyrus; rather, they have intensified it. Many years ago an attempt was made to translate the Ebers papyrus into German. The present document offers not a complete translation but rather a popularization of the interesting information available in the document. It is essentially a guide to the materia medica and therapy of the period of about 1500 B. C.

Enfermedades de los viejos. Por Carlos Diez Fernandez, del Hospital Nacional de Enfermedades Infecciosas de Madrid. Nociones para el medico practico. Paper. Price, 6 pesetas. Pp. 232. Madrid: Javier Morata, 1931.

This is a clinical survey of diseases of old age. Pulmonary tuberculosis is more frequent than might be supposed and occurs oftener in women than in men; bronchopneumonia as a sequel to various debilitating conditions is fully described; the gravity of erysipelas, septicemias and the common cold are stressed. Cerebral and circulatory disturbances from arteriosclerotic changes are adequately discussed. Malignant conditions, although frequent in older people, decrease in their incidence with increasing age.

A Doctor of the 1870's and 80's. By William Allen Pusey. Cloth. Price, $3. Pp. 153, with 28 illustrations. Springfield, Illinois: Charles C. Thomas, 1932.

Fortunate is the son to whom his father is a hero. Fortunate also is the father whose son can with sincere appreciation recount the record of his father's useful life. From memories, from diaries and with excellent photographs made by himself at the time, Dr. Pusey reconstructs the life of a doctor of the old school in the years from 1880 to the beginning of the present century. The book serves, incidentally, the purpose of recording systematically the qualities of the practitioner of that day which endeared him in general to all the people and which make modern man view with regrets the coming of the machine age in medicine. The book is replete with citations to letters and documents which bring the reader promptly into the proper atmosphere for understanding. Dr. Pusey has also been exceedingly fortunate in his publisher. The book seems to have been designed and published *con amore*.

Lehrbuch der Allgemeinen Physiologie. Herausgegeben von Dr. Phil. et Med. Ernst Gellhorn, a. o. Professor der Physiologie an der Universität Halle. Paper. Price, 47 marks. Pp. 741, with 126 illustrations. Leipzig: Georg Thieme, 1931.

As the title indicates, this volume is a textbook of general physiology designed for students interested in the field. Written from the point of view first expressed by Claude-Bernard, the author does a most creditable and systematic job. At the end of each chapter there is a comprehensive bibliography. In succeeding chapters one finds a discussion of the cell as a physicochemical system, chemistry of cell processes, energetics of the living substance, the cell as a morphologic system, general physiology of cell development and architecture, general physiology of irritable processes, and tropisms. The practicing physician will not find the book serviceable to him although the phenomena discussed are at the basis of, or tantamount with, life itself.

Annual Report of the Board of Regents of the Smithsonian Institution Showing the Operations, Expenditures, and Condition of the Institution for the Year Ending June 30, 1930. (Publication 3077). Cloth. Price, $2. Pp. 650, with illustrations. Washington, D. C.: Supt. of Doc., Government Printing Office, 1931.

Most governmental documents, particularly the reports of government bureaus, are dry and uninteresting contributions of statistical material. The Smithsonian Institution is an exception. It provides the usual material included in government reports but the general appendix includes lectures and essays by workers in the institution which are worthy of record and study. For instance, the report for 1930 includes an essay entitled "Beyond the Red in the Spectrum," another on the modern sun cult, one on the autogiro; another on gliding, several reports on the weather, one on man and insects, another on general entomology, and many on biologic topics. There are also discussions on anthropology and ethnology. The material is beautifully printed, fully and handsomely illustrated, and well worthy of permanent record.

Die gesamte Kosmetik (Entstellungsbekämpfung): Ein Grundriss für Ärzte und Studierende. Von Dr. Martin Gumpert, Facharzt für Hautkrankheiten in Berlin. Paper. Price, 12.80 marks. Pp. 228, with 45 illustrations. Leipzig: Georg Thieme, 1931.

For those who are of the opinion that dermatology as a branch of medicine is threatened with extinction and that the future dermatologist may become a cosmetician the present volume will prove of interest. The title chosen by Dr. Gumpert implies a broader conception of the subject, including the correction of cosmetic defects by operative procedures. There are chapters on the disfiguring skin diseases, on the technic of physical methods as applied in the cosmetic therapy of the skin, and a discussion of the varied medicinal agents used in the care of the normal and the diseased skin and its appendages. This book can be recommended as a sound, practical exposition of a phase of dermatology that is all too frequently left to the laity or to charlatans.

Medical Men in the American Revolution, 1775-1783. By Louis C. Duncan, Lieut. Colonel, U. S. Army, Retired. Paper. Pp. 414, with illustrations. Carlisle Barracks: Medical Field Service School, 1931.

A special issue of the *Army Medical Bulletin,* number 25, prepared by Lieut. Col. Louis C. Duncan, has just made available a complete account of medical men of the American Revolution. The *Bulletin* is a valuable contribution to American medical history. It indicates a vast amount of research and should be made available in permanent book form. The account is entertaining as well as instructive. It is supplemented by reprinting of numerous original documents, letters, official orders and reports, and includes many drawings and photographs assembled from various sources.

Osler and Other Papers. By William Sydney Thayer, M.D., LL.D. Cloth. Price, $3.50. Pp. 386. Baltimore: The Johns Hopkins Press; London: Humphrey Milford, Oxford University Press, 1931.

Dr. Thayer, for many years a leader in medicine in this country, recognized for his personality and his interests in the esthetic side of medical practice, has accumulated under one cover addresses delivered during many years. Five chapters of the book are devoted to intimate reminiscences of William Osler; others are biographic tributes to great figures, such as Fitz, Welch, Pasteur, Bright and Howland. A few of the essays deal with medical education, with the history of medicine and with the relationships of the physician to his profession and to the public. Dr. Thayer writes carefully, systematically and with a personal tone that is his own. His friends—and their number is legion—will appreciate the opportunity to have permanently this work, which is so much the man himself.

The Jungle of the Mind. By Edgar James Swift, Head of the Department of Psychology, Washington University, St. Louis. Cloth. Price, $2.50. Pp. 340. New York: Charles Scribner's Sons, 1931.

The mind of man is still much of a mystery. The great discoveries of science, themselves miraculous, merely confuse many of the public into believing that anything is possible and everything is credible. It has interested Professor Swift to consider the human mind as a jungle through which the path is only beginning to be found. His chapters on curiosities of the mind, on the will to believe, and on telepathy, memory and mental healing are amusing and instructive. He has collected his data from hundreds of sources and he illustrates each of his points with anecdote and case history. Into the midst of a vast amount of folly now being written on such subjects as behaviorism and psychoanalysis this book sweeps like a breath of fresh air. The book is exceedingly worth while as a contribution to rationalism and also as a contribution to philosophy. Furthermore, it will provide any reader several hours of extraordinarily good entertainment.

The Principles of the Prophylaxis of Leprosy. First General Report of the Leprosy Commission. League of Nations, Health Organisation. Series of League of Nations Publications, III. Health, 1931. III. 2. Official No.: C. H. 970. Paper. Price, 15 cents. Pp. 12. Geneva: League of Nations, 1931.

Prophylaxis of leprosy is not a problem that admits of solution by the application of any one measure but varies with geographic, economic, administrative, financial and social conditions. Treatment is an important part of prophylaxis, and the earlier this is instituted, the sooner the patient may become bacteriologically negative and clinically "cured." In countries where leprosy is prevalent, facilities should be available for clinics and dispensaries, scientific research and service for discharged lepers. There is a discussion of isolation and treatment and a plea for uniformity of terminology, records and technic of examination.

Midwifery. By Ten Teachers under the direction of Comyns Berkeley, M.A., M.D., M.C. Edited by Comyns Berkeley, J. S. Fairbairn and Clifford White. Fourth edition. Cloth. Price, $7.50. Pp. 740, with 301 illustrations. New York: William Wood & Company, 1931.

This book is simply written and is intended for students. It is written somewhat on the order of a manual, most phases of the subject being only briefly discussed. The book is divided into five sections, which include pregnancy, labor, the puerperium, the new-born child, and relief of pain and suffering in obstetric practice. A questionable procedure described under cesarean section is the delivery of the uterus onto the abdominal wall after the birth of the child. The sutures are put into the uterine wall with the uterus thus exposed. The illustrations are mostly diagrams and are instructive. Although written by ten contributors, the method of presentation is the same in all chapters, thus making the style appear individual. The book should be a valuable aid to the student preparing for examination or to the general practitioner needing a ready reference handbook on obstetrics.

Aversión y atracción en el matrimonio. Por el Dr. Th. H. Van de Velde. Traducción directa de la séptima edición alemana por José W. Nake, intérprete jurado de Madrid. Prólogo del Doctor José M. Sacristán. Paper. Pp. 354, with illustrations. Madrid: Javier Morata, 1931.

The Spanish translation of this German work is preceded by a few introductory remarks by Dr. José M. Sacristán. The educational value and the necessity of publications of such works as this by Van de Velde to the Spanish-speaking world are emphasized. The Spanish translation reads itself fluently and holds one's attention.

The Note-Book of Edward Jenner in the Possession of the Royal College of Physicians of London. With an Introduction on Jenner's Work as a Naturalist. By F. Dawtrey Drewitt, M.D., F.R.C.P. Cloth. Price, $1.25. Pp. 49. New York: Oxford University Press, 1931.

This volume is prefaced by a photogravure of Edward Jenner worthy of a place as an adornment in any medical office. The manuscript notebook of the great founder of modern immunology came into possession of the Royal College of Physicians in 1888. The manuscript consists of a notebook of eighty pages, some of which are blank. It covers the period from 1787 to 1806 and records observations made by Jenner concerning the habits of the cuckoo, the presence of hydatids in the bodies of various animals, and distemper in dogs. Edward Jenner was a naturalist as well as a physician. He made many necropsies on dogs that had died of distemper, his one important conclusion being that the lungs are often the seat of extensive inflammation. The book includes not only an exact transcription in good type of the contents of the book but also an appreciative essay by Dr. Drewitt. The reasonable price and the artistic character of this publication make it an inviting volume for any physician's personal collection.

Medicolegal

Liability of Charitable Hospital for Injury to Invitee

(Cohen v. General Hospital Soc. of Connecticut (Conn.), 154 Atl. 435)

The wife of the plaintiff, Cohen, was a patient in a hospital owned and operated by the defendant, the General Hospital Society of Connecticut. She had been discharged, and Cohen went to the hospital to take her home. While on the hospital premises he tripped over an iron pipe that had been negligently placed and permitted to remain near the exit from the hospital building. He brought suit for damages on account of the injuries that resulted from the fall. From a judgment in the trial court in favor of the hospital, he appealed to the Supreme Court of Errors of Connecticut.

The defendant, The General Hospital Society of Connecticut, was incorporated by a special act of the General Assembly of the state in 1826, for the purpose of establishing and maintaining a general hospital in New Haven. By way of defense, it claimed that it was a state institution performing governmental functions. Therefore, it argued, it was immune from liability, under the theory that limits the liability of a municipal corporation for acts done by it in the performance of a governmental duty. The act under which the corporation was organized, said the Supreme Court of Errors, created a private corporation dedicated to the purpose of general and public charity. While the corporation is a public charity in the popular significance of the term and the benefits it bestows are public, its organization and management are private. Though it receives aid from the state in the way of exemption from taxation and by state appropriation toward its support, it is not a state institution and in its operation is not acting as an agency of the sovereign. It is therefore not entitled to immunity on the ground that it is an arm of the government engaged in the performance of a public governmental duty.

The Hospital Society claimed further that as it was a charitable institution its funds were held in trust for the particular charitable purposes for which they were given, that payment of damages awarded in actions for injuries resulting from neglect or wrongful acts was not a purpose contemplated by the trust, and that it would be a breach of trust to apply the funds to the payment of such damages. But, said the court, the fact that the hospital's funds are held in trust does not free it from liability for its wrongful acts. Being a corporation organized for charitable purposes, it is bound to apply its corporate funds to charitable purposes only. It holds such funds under a quasi trust arising from that restriction. In this respect, however, it does not differ from any business corporation, whose officials are bound to hold and apply its property only for the purposes for which the corporation was organized. Such immunity from liability for its wrongful acts as may be claimed by a charitable corporation must be based, not on the public character of its charity, nor on the fact that its funds are held in trust, but on its eleemosynary character. It has been said that public policy forbids the crippling or destruction of charities established for the benefit of the whole public, to compensate one person for injuries suffered through the negligence of the corporation or of its servants or agents; that it is better that an individual should suffer injury without compensation than that the public be deprived of the benefit of the charity. *Vermillion* v. *Woman's College of Due West,* 104 S. C. 197, 88 S. E. 649. However that may be, in most jurisdictions charitable hospitals are held immune from liability to their patients for the negligence of the hospital's employees or agents, but they are subject to actions in tort by strangers or by their own employees, and their funds subject to depletion by the payment of damages awarded in such actions. This has not resulted in crippling or destroying such charitable institutions in jurisdictions in which this principle is adhered to.

If the enforcement of the right of individuals to recover from charitable corporations does not deprive the public of the benefits of such institutions, we fail to see, said the court, on what ground it can be said that public policy requires that a charitable corporation should be granted absolute immunity from liability for its neglect or wrongful acts. It is a corporation capable of suing and being sued and liable on its contracts as is any other person, corporate or individual. That its funds have been dedicated to charity does not place it beyond the law; the will of the donor or donors of the funds of the institution does not exempt them from the operation of the general laws of the land. A charity should not be permitted to inflict injury on some persons without the right of redress, in order to bestow charity on others. The result would be to compel the injured person to contribute to the charity against his will. The modern tendency of the law is, on the contrary, to shift the burden from the innocent victim to the community at large.

Whether or not, and to what extent, a charitable corporation is liable in tort for negligence is a question that has often vexed the courts. The cases on the subject present an almost hopelessly tangled mass of reason and unreason. In a number of states the courts have held such corporations entitled to an absolute exemption from tort liability to every class of plaintiff. In the better reasoned cases the courts have held such institutions liable in tort to strangers, invitees and employees, not discovering any sound reason of public policy justifying an exemption from liability. Here the plaintiff was not a patient of the hospital; he was at most an invitee, when he went to the hospital for his wife, who had been a patient. The fact that he had agreed to pay for her care and treatment at less than its cost to the defendant did not place him in the same legal situation as his wife had she been the plaintiff. The defendant owed him the duty which any land owner owes to an invitee who comes on his premises. For the reasons stated the judgment of the trial court was reversed and the case remanded for a new trial.

Malpractice: Care and Skill Required of Chiropractor.—Since a chiropractor is required by law in California to use the same degree of care, diligence and skill in the treatment of his patients as is used by other chiropractors, the district court of appeal, fourth district, California, refused to disturb a judgment in favor of a patient against a chiropractor where there was evidence in the record supporting a jury's finding that the chiropractor had not possessed nor exercised the care and skill possessed and used by other chiropractors in that vicinity and in consequence had broken or torn the cartilage connecting his patient's ninth right rib with the sternum.—*Howe v. McCoy (Calif.), 298 P. 530.*

Society Proceedings

COMING MEETINGS

Alabama, Medical Association of the State of, Mobile, April 19-22. Dr. D. L. Cannon, 519 Dexter Avenue, Montgomery, Secretary.
American Association for Thoracic Surgery, Ann Arbor, Mich., April 18-20. Dr. Duff S. Allen, 3720 Washington Blvd., St. Louis, Sec'y.
American Association of Anatomists, New York, March 24-26. Dr. George W. Corner, University of Rochester School of Medicine, Rochester, N. Y., Secretary.
American Association of Pathologists and Bacteriologists, Philadelphia, April 28-29. Dr. Howard T. Karsner, 2085 Adelbert Road, Cleveland, Secretary.
American Association of Physical Anthropologists, Washington, D. C., March 21-23. Dr. D. J. Morton, 632 W. 168th St., New York, Sec'y.
American College of Physicians, San Francisco, April 4-8. Mr. E. R. Loveland, 133 South 36th Street, Philadelphia, Executive Secretary.
American Physiological Society, [illegible] r. Arno B. Luckhardt, 5216 Greenwood [illegible]
American Society for Experime [illegible] April 28-30. Dr. C. Phillip Miller, Jr., U [illegible] Secretary.
American Society for Pharmacology and Experimental Therapeutics, Philadelphia, April 27-30. Dr. V. E. Henderson, University of Toronto, Toronto, Secretary.
American Society of Biological Chemistry, Philadelphia, April 28-30. Dr. H. B. Lewis, University of Michigan Medical School, Ann Arbor, Secretary.
Arizona State Medical Association, Globe, April 21-23. Dr. D. F. Harbridge, 407 Goodrich Building, Phoenix, Secretary.
Arkansas Medical Society, Little Rock, April 5-7. Dr. William R. Bathurst, 814 Boyle Building, Little Rock, Secretary.
Maryland, Medical and Chirurgical Faculty of, Baltimore, April 26-27. Dr. Walter Dent Wise, 1211 Cathedral Street, Baltimore, Secretary.
Medical Society of the Missouri Valley, Omaha, Neb., March 29-31. Dr. Joseph D. McCarthy, 107 South 17th Street, Omaha, Secretary.
Mississippi State Medical Association, Jackson, April 12-14. Dr. T. M. Dye, Clarksdale, Secretary.
North Carolina, Medical Society of the State of, Winston-Salem, April 18-20. Dr. L. B. McBrayer, Southern Pines, Secretary.
South Carolina Medical Association, Columbia, April 19-21. Dr. E. A. Hines, Seneca, Secretary.
Southeastern Surgical Congress, Birmingham, Ala., March 7-8. Dr. B. T. Beasley, 45 Edgewood Avenue, Atlanta, Ga., Secretary.
Tennessee State Medical Association, Memphis, April 12-14. Dr. H. H. Shoulders, *706 Church Street, Nashville, Secretary.*

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to The Journal in continental United States and Canada for a period of three days. Issues of periodicals are kept on file for a period of five years only. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending, but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

Alabama Medical Association Journal, Montgomery

1: 233-272 (Dec.) 1931

Treatment of Fibroid Tumors of Uterus: Analysis of 318 Cases. W. C. Dixon, Nashville, Tenn.—p. 233.
Pellagra. W. D. Partlow, Tuscaloosa.—p. 237.
Childhood Type of Tuberculosis. P. W. Auston, Montgomery.—p. 238.
Early Diagnosis of Pulmonary Tuberculosis. T. D. Rivers, Montgomery.—p. 242.
Home Treatment of Pulmonary Tuberculosis. S. B. McPheeters, Montgomery.—p. 245.
Artificial Pneumothorax in Treatment of Pulmonary Tuberculosis. N. R. Clarke, Jr., Mobile.—p. 250.
Tuberculosis of Kidney: Report of Cases. C. A. Grote, Huntsville.—p. 259.

American Heart Journal, St. Louis

7: 133-278 (Dec.) 1931

*Congenital Medial Sclerosis of Coronary Artery. R. W. Kissane, Columbus, Ohio, and R. S. Fidler, Springfield, Ohio.—p. 133.
*Rheumatic Heart Disease: I. Incidence and Rôle in Causation of Death: Study of Five Thousand Two Hundred and Fifteen Consecutive Necropsies. D. Davis and Soma Weiss, Boston.—p. 146.
*Studies in Congestive Heart Failure: XVI. Clinical Value of Ventilation Test in Estimation of Cardiac Function. T. R. Harrison, S. Harris, Jr., and J. A. Calhoun, *with assistance of* M. M. Tims, Nashville, Tenn.—p. 157.
*Depression of Vomiting Reflex by Digitalis Bodies. H. Gold, Janet Travell and N. Kwit, New York.—p. 165.
Eosinophilia Due to Administration of Digitalis. A. E. Smith and S. R. Benner, St. Louis.—p. 182.
Observations on Duration of Electrical Systole of Heart, with Especial Reference to Effect of Digitalis. K. Berliner, New York.—p. 189.
Accuracy of Einthoven's Equation. F. N. Wilson, A. G. MacLeod and P. S. Barker, Ann Arbor, Mich.—p. 203.
*Potential Variations Produced by Heart Beat at Apexes of Einthoven's Triangle. F. N. Wilson, A. G. MacLeod and P. S. Barker, Ann Arbor, Mich.—p. 207.
Localized Pleural Effusion in Heart Failure: Two Cases. J. M. Steele, New York.—p. 212.
Incidence of Heart Disease and Etiologic Types in Southern Dispensary. E. H. Schwab and V. E. Schulze, Galveston, Texas.—p. 223.
Large Q-Wave of Electrocardiogram: Correlation with Pathologic Observations. N. M. Fenichel and V. H. Kugell, New York.—p. 235.
Nature of Experimental Flutter and Fibrillation of Heart. W. A. Brams and L. N. Katz, Chicago.—p. 249.
Congenital Heart Disease: Clinical and Pathologic Study of Two Cases of Truncus Solitarius Aorticus (Pulmonary Atresia). M. A. Kugel, New York.—p. 262.

Congenital Medial Sclerosis of Coronary Artery.—Kissane and Fidler report a case of congenital medial sclerosis of the coronary arteries and present a review of the literature. The process is noninflammatory and is characterized by a primary medial thickening, confined to the larger coronary branches. The process is probably an earlier stage than those previously reported. The electrocardiogram shows a T-wave similar to that seen in the more familiar types of coronary sclerosis. The authors suggest the name of congenital medial sclerosis of the coronary arteries.

Rheumatic Heart Disease.—Davis and Weiss state that, among the 5,215 consecutive necropsy examinations of patients from the poorer class who were cared for in the Boston City Hospital between the years 1905 and 1929 inclusive, a combined clinical and morphologic study revealed rheumatic heart disease in 474, or 9.1 per cent, of the cases. Rheumatic heart disease was found in 56.6 per cent of the males, and in 43.4 per cent of the females in the group with rheumatic heart disease. The sex distribution in the total necropsy examinations was: males, 62 per cent; females, 38 per cent. Thus rheumatic heart disease was slightly more prevalent among the females. Eighteen, or 3.8 per cent, of the total number with rheumatic heart disease were Negroes. Eight per cent of the patients examined post mortem were Negroes. This would indicate that rheumatic heart disease occurs only about half as frequently among Negroes living in New England as among the white race. Rheumatic heart disease was directly responsible for death in 164 instances, or 34.5 per cent, of the total group with rheumatic heart disease. In an additional group of forty-one cases, corresponding to 8.6 per cent of all the cases in this group, subacute bacterial endocarditis was superimposed on rheumatic disease. In twenty-one cases, corresponding to 4.4 per cent of these cases, malignant endocarditis developed in association with rheumatic heart disease. In two additional cases, secondary malignant endocarditis was independent of the rheumatic heart disease. As the subacute and primary acute endocarditis developed on previously damaged rheumatic valves, in this group, representing 13 per cent of all cases of rheumatic heart disease, death was caused indirectly by rheumatic heart disease. Rheumatic heart disease contributed to death in forty-one instances, or 8.6 per cent, of the total cases. In 205 cases, or 43.2 per cent of the cases of rheumatic heart disease, the character of the cardiac involvement was such that the lesions did not contribute to death. Rheumatic heart disease is surprisingly prevalent among the poorer section of the population of Boston. Its frequency (9.1 per cent) approaches that of carcinoma (10.4 per cent). Rheumatic heart disease frequently exists as a mild "forme fruste" manifestation, without causing obvious impairment of the circulation.

Congestive Heart Failure.—Measurements of the vital capacity and of the ventilation on the performance of a series of standardized exercises were made by Harrison and his associates on 100 subjects. Of these, twenty-one were normal, sixteen had cardiac neurosis, ten had organic cardiac disease without symptoms, twenty-one had dyspnea on exertion only, and thirty-two had, in addition to dyspnea on exertion, some respiratory discomfort at rest. From the measurements a value called the ventilation index, which is a fairly close objective expression of the degree of dyspnea, was calculated. Analysis of the data shows that the determination of the ventilation index is of little or no value in the diagnosis of the presence or absence of organic heart disease, because patients with cardiac neurosis, patients with asymptomatic cardiac disease and normal subjects all occasionally have borderline tests, although the majority of patients in these groups have normal values. Patients with cardiac dyspnea nearly always have high values for the ventilation index but in such patients the customary methods of study are usually adequate to establish a diagnosis of the presence of organic cardiac disease. In a given case repeated determinations of the ventilation index may be of considerable value in prognosis. Single tests give relatively little information as to the outlook. In general, the patients with low values have a good prognosis and those with very high values have a poor outlook but exceptions are fairly numerous because the test measures only the degree of dyspnea at the moment and is not influenced by such extremely important factors as the liability to infection, the tendency to thrombosis or the likelihood of coronary and other vascular accidents. The ventilation test appears to be of definite clinical value in one group of cases: namely, in those patients who have both organic and functional disorders referable to the heart. Such instances are not uncommon and the ventilation test allows one to determine with fair accuracy how much of the patient's dyspnea is due to the cardiac neurosis and how much to the cardiac disease. This information, which cannot be obtained by any other method, may be of considerable value in prognosis and in treatment. The authors believe that the chief value of the ventilation test is in research, because it provides a method for determining quantitatively the effect of various therapeutic measures on dyspnea.

Depression of Vomiting Reflex by Digitalis Bodies.—Gold and his associates describe experiments in which they noted that repeated doses of the digitalis bodies may depress the vomiting reflex while simultaneously increasing the intensity of the cardiac poisoning, so that after an initial period of vomiting the continued administration of these drugs may fail to produce emesis and may even cause death without further vomiting. These experimental results suggest the need of caution in relying on nausea and vomiting as measures of the degree of cardiac poisoning in the clinical use of the digitalis bodies.

Einthoven's Triangle.—Wilson and his associates describe a method by means of which it is possible to determine the potential variations produced by the heart beat at any one or all of the apexes of Einthoven's equilateral triangle. It is consequently possible to determine the potential variations produced by the heart beat at any point of the body by leading from this point to the left leg, or the left or right arm, and subtracting the effect produced by the potential variations of this extremity from the recorded curve. It is possible by this method to free curves obtained by leading from points on or near the heart to points at a distance, such as on the left leg, from the influence exerted by potential variations at the distant electrode.

American J. Medical Sciences, Philadelphia

183: 1-152 (Jan.) 1932

*Metabolic Studies in Addison's Disease: Effect of Treatment with Cortical Hormone of Suprarenal Gland. C. H. Greene and L. G. Rowntree, Rochester, Minn., and W. W. Swingle and J. J. Pfiffner, Princeton, N. J., with assistance of Mary Sue Bledsoe.—p. 1.
*Enteral Administration of Insulin to Normal Dogs. J. L. Bollman and F. C. Mann, Rochester, Minn.—p. 23.
Electrocardiographic Diagnosis of Coronary Occlusion by Use of Chest Leads. C. C. Wolferth and F. C. Wood, Philadelphia.—p. 30.
*Auricular Fibrillation: Its Etiology, Age Incidence and Production by Digitalis Therapy. D. McEachern and B. M. Baker, Jr., Baltimore.—p. 35.
Etiology, Prognosis and Treatment of Auricular Fibrillation. W. D. Stroud, L. B. Laplace and J. A. Reisinger, Philadelphia.—p. 48.
Subacute Bacterial Endocarditis, with Especial Reference to Valvular Lesions and Previous History. M. N. Fulton and S. A. Levine, Boston.—p. 60.
Sarcoma of Spleen. L. Frank, Louisville, Ky.—p. 77.
Chemical Factors Regulating Blood Pressure. R H. Major, Kansas City, Kan.—p. 81.
Study of Yellow Fever by Protection Test in Mice. F. F. Russell, New York.—p. 87.
Presence of Heterophil Antibodies in Infectious Mononucleosis. J. R. Paul and W. W. Bunnell, New Haven, Conn.—p. 90.
*Myeloid Cell Hyperplasia of Bone Marrow in Agranulocytic Angina. T. Fitz-Hugh, Jr., and E. B. Krumbhaar, Philadelphia.—p. 104.
Response of Reticulocytes to Iron. G. R. Minot and C. W. Heath, Boston.—p. 110.

Metabolic Studies in Addison's Disease.—Greene and his associates made a study of the chemical and metabolic changes observed in cases of Addison's disease, and the effect on these changes of treatment with the cortical hormone of the suprarenal. They emphasize that the clinical course of a case of Addison's disease may arbitrarily be divided into three stages: (1) the stage of initial destruction of the suprarenals; (2) the stage of the recognizable clinical syndrome, and (3) the terminal stage or crisis. Usually the disease is not recognized until the second stage is reached. At this time there may be loss of weight, asthenia and definite undernutrition. The basal metabolic rate is reduced slightly and there is some reduction in the blood sugar. Such changes become less with treatment, and more marked in the periods of crisis. The quantities of the various constituents of the urine in Addison's disease corresponded to the lower levels of the usually accepted normal standards. Creatinuria was present in a considerable proportion of cases. Retention of practically all urinary constituents was noted in one case in the course of a period of diminished urinary output. The nitrogen balance of those patients who were losing weight was negative. The majority of patients gained weight as a result of treatment with the suprarenal cortical hormone. In such cases the nitrogen balance became markedly positive. The period of crisis was characterized by gastro-intestinal upsets, nausea and vomiting, pains, circulatory collapse, low blood pressure, dehydration and renal insufficiency. The effect of the last two dominated the chemical picture at this time. The authors consider the relation between the chemical and metabolic changes observed in cases of Addison's disease, and those reported in suprarenalectomized animals, and the use of these changes for the standardization of preparations of the suprarenal cortical hormone.

Enteral Administration of Insulin.—Bollman and Mann report that large amounts of insulin may be instilled directly into the duodenum, jejunum or ileum without any appreciable effect on the sugar of the blood of normal dogs, except for the slight effects when concentrated insulin was used. The addition of acid, blood or bile to insulin thus administered did not alter this. If insulin is injected into the lumen of an isolated portion of ileum the blood sugar of the animal is not affected, but small amounts of insulin given submucously produce typical hypoglycemia. Insulin gradually disappears from within the lumen of the ileum. With the doses used by the authors, sufficient insulin remains after one hour to produce definite hypoglycemia if the insulin is injected subcutaneously. Insulin incubated with ileac washings is not so rapidly destroyed. It would appear that the intestinal mucosa inactivates insulin so that it is not effectively absorbed. Small amounts of insulin may escape inactivation if sufficiently concentrated insulin is applied to the intestine.

Auricular Fibrillation.—McEachern and Baker made a study of 575 consecutive cases of auricular fibrillation confirmed by electrocardiographic records. The etiologic relationships to the various forms of cardiac disease are tabulated. The infrequent occurrence of the arrhythmia in the first decade of life is discussed and two additional instances are recorded. Emphasis is laid on the rarity of auricular fibrillation in syphilitic cardiovascular disease. In the authors' series, 35 per cent of the cases were associated with rheumatic heart disease and only 3 per cent with syphilitic cardiovascular disease. Note is made of the production of auricular fibrillation by the administration of digitalis.

Agranulocytic Angina.—Fitz-Hugh and Krumbhaar found myelocytes and myeloblasts in the bone marrow at necropsy in more than normal numbers in a case of typical "agranulocytic angina" in which the antemortem blood count was 200 white cells per cubic millimeter (all lymphocytes), i. e., a marked absolute reduction of lymphocytes and absence of all other white cells. Based on this and similar cases recorded in the literature, the authors raise objection to the current hypothesis of "granulocytic aplasia" as constituting the "primary" pathologic mechanism of the disease, and in its place they propose an hypothesis of "maturation arrest." As there is an absolute reduction of lymphocytes in the blood stream as well as of neutrophils and on account of certain analogies with pernicious anemia, designation such as pernicious leukopenia is suggested as preferable to the more widely used names for this disease.

American Review of Tuberculosis, New York

25: 1-152 (Jan.) 1932

*Environments in Tuberculosis. H. Sewall, Denver.—p. 1.
*Basal Pulmonary Lesions. P. Dufault, Rutland, Mass.—p. 17.
Examination of Blood as Aid in Diagnosis of Hilus Lymph-Node Tuberculosis. E. Friedman, W. Dameshek and J. B. Hawes 2d, Boston.—p. 24.
*Diagnosis of Diseases of Hip Joint, with Especial Reference to Tuberculosis of Hip. R. M. Burlingame, Denver.—p. 32.
Hemoptysis in Pulmonary Tuberculosis: One Thousand Consecutive Patients. A. R. Masten, Wheat Ridge, Colo.—p. 42.
*Tuberculosis and Toxic Goiter. L. W. Frank, Denver.—p. 49.
Lysozyme and Tuberculosis. H. J. Corper, Denver.—p. 59.
Glycerin as Vehicle for Tuberculin Dilutions. H. S. Willis, Northville, Mich.—p. 67.
*Early Cellular Reactions in Lungs of Rabbits Injected Intravenously with Human Tubercle Bacilli. A. J. Vorwald, Chicago.—p. 74.
Interpretation of Apical Linear Shadows in Roentgenograms of Thorax. P. M. Andrus, London, Ont.—p. 89.
*Effect of Paralysis of Hemidiaphragm on Intercostal Activity. J. W. Gale and W. S. Middleton, Madison, Wis.—p. 99.
*Association of Tuberculosis and Carcinoma. F. G. Cooper, Huntington Park, Calif.—p. 108.
Antisyphilitic Treatment in Tuberculosis Patients. L. Fisher, Waverley Hills, Ky.—p. 148.

Environments in Tuberculosis.—Sewall believes that nothing conduces more to clarity of perception or suggests new meanings in old phenomena than a formal reclassification of one's stock of knowledge. From this point of view he was led to consider various different factors which are confused together in the term "environment," and in the attempt to analyze the concept he was constrained to divide them into five different groups: the external environment, the internal environment, the voluntary neuromuscular environment, the vegetative environment (including the endocrine system) and the psychic environment. The author discusses these factors in their relationship to tuberculosis.

Basal Lesions.—Dufault presents a brief review of the literature on basal lesions. The prevailing opinion is that tuberculosis located exclusively at the base of the lungs is extremely rare. Five typical cases of basal lesions mistaken for tuberculosis are reported. The author believes that the bronchoscope is of considerable value and should have its place in all well equipped sanatoriums.

Diagnosis of Hip-Joint Disease.—Burlingame considers that in the differential diagnosis of tuberculosis of the hip, coxa plana, coxa vara, acute infectious arthritis and acute transient epiphysitis, the most difficult is in differentiating tuberculosis of the hip and infectious arthritis, especially in the subacute stage. The history of the acute onset in infectious arthritis, the absence of demonstrable tuberculosis elsewhere in the body, negative skin tests, all aid in the diagnosis. In hip-joint disease, beginning with pain, increased temperature and increased leukocyte count, the hip joint should be aspirated and cultures of the fluid taken in an attempt to demonstrate pyogenic infection. Coxa plana occurs during the middle years of childhood, between the ages of 5 and 10, while tuberculosis occurs usually between 3 and 5 years of age. In coxa plana the motion is limited chiefly in two directions, abduction and internal rotation, while in tuberculosis the motion is limited in all directions. Muscle spasm in coxa plana is mild and in tuberculosis severe. Roentgen examination demonstrates characteristic changes which are quite different from those of tuberculosis. In coxa vara symptoms are almost identical with those of coxa plana, except that the hip is frequently rotated outward. Coxa vara is nearly always observed in the neuter type of individual. Roentgen examination demonstrates typical epiphyseal separation, which confirms the diagnosis. Psoas abscess may frequently be confused with tuberculosis, but here the range of motion is limited chiefly in extension. There is often a mass palpable above Poupart's ligament and there is usually evidence of a lesion of the spinal column.

Tuberculosis and Toxic Goiter.—Frank presents a case in which toxic goiter and toxic tuberculosis occurred in the same patient. Some enlargement of the thyroid and mild manifestations of hyperthyroidism are common in tuberculosis, particularly in young female patients, but toxic forms, namely, toxic diffuse goiter and toxic nodular goiter, are rare.

Early Cellular Reactions in Lungs of Rabbits.—Vorwald describes experiments in which he noted that the cells that respond first to an intravenous injection of human-type tubercle bacilli in rabbits (0.1 mg. per kilogram of animal weight) are the polymorphonuclear leukocytes. This reaction, while transitory, is not one of negligible significance. It is through the agency of the polymorphonuclear leukocytes that the site of subsequent development of the tubercle is determined. These cells phagocytose the tubercle bacilli in the blood stream and stagnate in small accumulations in the capillaries where the current is slow. In this way injected bacilli are concentrated and localized. The focalized accumulations of polymorphonuclear leukocytes form the groundwork from which the epithelioid tubercles develop. Mononuclear exudate cells are preponderant in the cellular response after the first few hours (from fourteen to eighteen hours on). They mingle with the polymorphonuclear leukocytes, phagocytose and digest them and take up their content of tubercle bacilli. In this way, by replacement of the leukocytic mass, the mononuclear-cell tubercle, ultimately the epithelioid tubercle, develops. The increase in mononuclear exudate cells in the field of inflammation, in almost total absence of mitotic figures in such foci, indicates that the majority of reacting cells of this type are hematogenous in origin.

Paralysis of Hemidiaphragm.—Gale and Middleton report observations which led them to conclude that phrenic block, with resultant paralysis of the hemidiaphragm, relaxation and compression of the lung, produces a certain measure of physiologic rest. This rest is not complete when other mechanical factors are considered (namely, the action of the intercostal and scalene muscle groups). Following phrenic block there is overactivity of the intercostal muscles, as reflected in increased movement of the thoracic cage at the level of the third and eighth ribs on the homolateral side. This overactivity may well explain the unfavorable results obtained in a certain group of patients following this operation. Certain adjunct operations (scaleniotomy and upper intercostal neurectomy) have proved of definite therapeutic value when performed simultaneously with phrenic block or at a later date to supplement the latter. These procedures decrease or abolish the overactivity of these two muscle groups induced by phrenic block and at the same time conserve the desired results of the latter operation, thus promoting more complete physiologic rest.

Tuberculosis and Carcinoma.—Cooper reviews the literature relative to the association of carcinoma and tuberculosis. This includes several hundred reports of cases in which the two diseases were present in the same organ. In addition, twenty-four cases observed at the Mayo Clinic, and never reported before, in which malignant and tuberculous lesions were intimately associated are presented. The frequency of this association is fairly convincing evidence that the two diseases are not antagonistic. Tuberculosis may exist with all degrees of malignant tumor. The finding of tuberculosis in an organ or biopsy specimen does not exclude the possibility of malignant tumor.

Archives of Ophthalmology, Chicago

6: 817-984 (Dec.) 1931

*Dystrophy of Corneal Endothelium: Its Recognition and Clinical Significance. L. C. Peter, Philadelphia.—p. 817.
Retinal Perivascular Delineation. J. N. Evans, Brooklyn.—p. 823.
Postoperative Nonexpulsive Subchoroidal Hemorrhage. B. Samuels, New York.—p. 840.
*Tonoscopy. A. Magitot, Paris, France.—p. 852.
Iso-Electric Point of Lens Protein. C. S. O'Brien and P. W. Salit, Iowa City.—p. 870.
Roenne's Nasal Step as Studied with Stimuli of Different Visibilities. C. E. Ferree, G. Rand and L. L. Sloan, Baltimore.—p. 877.
Metabolism of Retina: Further Notes. F. H. Adler, Philadelphia.—p. 901.
*Subnormal Accommodation. A. de H. Prangen, Rochester, Minn.—p. 906.

Dystrophy of Corneal Endothelium.—From the study of twenty-two cases of dystrophy of the corneal epithelium, Peter concludes that the condition is progressive and reaches its maximum when the entire endothelium is destroyed. Vision is lowered to about 6/7.5 to 6/9 from this cause alone. It is a degenerative process which, probably, is caused by a lack of nutrition of the ocular tissues. Although it is found in association with senile and nuclear cataract, the two conditions are related only in being an expression of ocular complications in patients suffering from nutritional disturbance. The condition is of much more frequent occurrence than its general recognition would indicate. The cases reported were found in the author's practice during the last year or eighteen months. The dystrophy, when well advanced, can be recognized without the aid of the slit lamp, but with good technic the slit lamp verifies the diagnosis in a most satisfactory manner. Patients with endothelial dystrophy are poor risks for intra-ocular surgical procedures. The protracted recovery of the one patient on whom the author operated would lead him to operate reluctantly for lens extraction, unless the patient is informed as to the probable operative complications that are apt to be encountered. Although vision is considerably reduced in the final stage of the disease in the cases thus far examined, the condition did not progress beyond the stage of complete vacuolization. This stage seems to be a stationary one. There is no tendency to regeneration. Dystrophy, therefore, seems to be the logical term to apply to the process.

Tonoscopy.—According to Magitot, the term "tonoscopy" (Terson) designates the method by which one evaluates the blood pressure in the vessels of the retina. Tonoscopy has in a few years enabled one to acquire interesting information, concerning not only the ocular but also the intracranial circulation. For the therapeutist, it therefore completes in a useful manner the study of the retinal vessels. Its principal interest, outside of ophthalmology, is to supply the neurologist with information as to the state of the intracranial pressure. Although it is a young science and susceptible of being improved, the method is worthy of being examined by all ophthalmologists, and the author believes that in a few years it will become as current as the act of determining systemic pressure with the sphygmomanometer or ocular tension with the tonometer.

Subnormal Accommodation.—Prangen states that subnormal accommodation exists as a definite clinical entity afflicting persons who have not reached the presbyopic age. It might be recognized oftener if strict attention were paid to individual accommodative power and its interpretation. Focal infection, particularly dental infection, seems to be a major cause. Fixation of the near points, without range, is an interesting and significant feature in accommodative asthenia.

Archives of Pathology, Chicago

12: 869-1066 (Dec.) 1931

Hemorrhage and "Shock" in Traumatized Limbs: Changes in Total, Free and Bound Water of Blood and Muscle. W. Robinson and Eloise Parsons, Chicago.—p. 869.
Nonsyphilitic Aortic Valve Deformity. B. J. Clawson, Minneapolis.—p. 889.
Homologous Liver as Stimulus to Hepatic Regeneration. F. A. McJunkin and H. C. Breuhaus, Chicago.—p. 900.
*Asbestosis: Two Cases. H. L. Stewart, C. J. Bucher and E. H. Coleman, Philadelphia.—p. 909.
Tularemic Leptomeningitis: Case. A. R. Bryant and E. F. Hirsch, Chicago.—p. 917.
*Experimental Arteritis and Arteriosclerosis Associated with Streptococcal Inoculations. R. L. Benson, K. G. Smith and H. Semenov, Portland, Ore.—p. 924.
*Hypervitaminosis D and Arteriosclerosis. H. L. Vanderveer, Toronto, Canada.—p. 941.
*Early Cellular Reaction to Tubercle Bacilli: Comparison of this Reaction in Normal and Tuberculous Guinea-Pigs and Guinea-Pigs Immunized with Dead Bacilli. E. R. Long, A. J. Vorwald and Lilian Donaldson, Chicago.—p. 956.

Asbestosis.—Stewart and his associates report two cases of pulmonary asbestosis. In the first case the symptoms were relatively unimportant. In the second case the disease was concomitant with tuberculosis and, with it, was the cause of death. The similarity between some of the features of tuberculosis in childhood and tuberculosis complicated by asbestosis is suggested. In asbestosis the lung is not the only organ invaded by asbestosis bodies. The authors show that the spleen and lymph nodes may harbor large asbestosis bodies. They believe that from the histories of the cases they report there appears to be a further need for study along the lines of prevention of this disease.

Experimental Arteriosclerosis. — Benson and his associates describe lesions in the aorta and other arteries in rabbits inoculated with streptococci from sclerotic coronary arteries, coronary thrombi and sinusitis. These lesions include acute arteritis with or without thrombosis and arteriosclerosis of the aorta and other arteries. The experimental changes are comparable with the corresponding arterial diseases found in man. Slight arterial changes were observed in monkeys following injections of streptococci, but the changes are regarded as inconclusive.

Hypervitaminosis D and Arteriosclerosis.—According to Vanderveer, the arteriosclerosis produced by him in rabbits by hypervitaminosis D is not specific. The earliest calcareous deposits in the blood vessels are in the form of an incrustation about the elastic fibers in the media, and are preceded by some change in the adjacent intercellular substance. Degeneration of the muscle cells of the media appears at a later period. In the author's experiments, the order of involvement of tissues showing calcareous deposits as a result of hypervitaminosis D, other than arteries, was: kidneys, stomach, heart, liver and lungs. Tissue degeneration due to a toxic process precedes calcification of these organs. The proliferative lesions occurring in the intima in arteries are not dependent on a primary degeneration of the media. No changes occurred in the bone marrow or in the parathyroids comparable to those found in hyperparathyroidism.

Cellular Reaction to Tubercle Bacilli.—Long and his associates describe experiments from which they conclude that prompt localization of tubercle bacilli is brought about by exudation of polymorphonuclear leukocytes and phagocytosis of the bacilli by these cells. Although the bacilli are at first widely spread and the initial polymorphonuclear reaction is correspondingly diffuse, aggregation of the leukocytes, containing all the bacilli injected, into distinct and separate foci soon occurs. The site of future true tubercle formation is thus determined, for the polymorphonuclears are soon replaced by large mononuclears, which, as shown by the experience of many other investigators, later develop into epithelioid cells with more abundant cytoplasm. The fact that replacement of the polymorphonuclear mass by large mononuclears did not occur appreciably earlier in the locally immunized testis, already full of mononuclear cells, than in the other testes of the series suggests that in these experiments, at least, the large mononuclear cells concerned in the reaction came directly from the blood stream and were not derived locally. An already present tuberculosis in the animal greatly accelerates the reacting capacity of the polymorphonuclear leukocytes. This may be looked on as simply one feature of a typical tuberculin reaction. Previous inoculation with dead bacilli brings about a similar allergic state, although the acceleration and increased intensity of inflammatory reaction over that seen in the normal animal are not nearly so great as in the truly tuberculous animal.

Canadian Public Health Journal, Toronto

22: 595-644 (Dec.) 1931

Anterior Poliomyelitis in Alberta in 1930. A. C. McGugan, Edmonton, Alta.—p. 595.
Tuberculosis in Hamilton. J. Roberts, Hamilton, Ont.—p. 600.
Carbon Monoxide Poisoning. D. Nicholson, Winnepeg, Manit.—p. 606.
Maternal and Child Welfare: Rôle of Medical Officer. J. Gregoire, Beauceville, Que.—p. 610.
Stream Pollution Problem in Canada: International Aspect. G. H. Ferguson, Saginaw, Mich.—p. 627.
Technic for Determination of Stream Pollution. A. V. DeLaporte, Toronto, Ont.—p. 630.
Racial Origin in Vital Statistics. S. Muirhead, Regina, Sask.—p. 633.

Colorado Medicine, Denver

29: 1-50 (Jan.) 1932

Review of Goiter Problem. S. D. van Meter, Denver.—p. 5.
Sarcoma of Small Intestine. Nolie Mumey, Denver.—p. 12.
Fibrosis of Bladder Neck with Regard to Its Pathology and Rational Treatment. W. M. Spitzer, Denver.—p. 18.
Agranulocytosis: Report of Case in Child. E. Friedman and T. Smith, Jr., Denver.—p. 26.

Journal of Experimental Medicine, New York

55: 1-168 (Jan.) 1932

*Rôle of Soluble Specific Substance in Oral Immunization Against Pneumococcus Types II and III. V. Ross, New York.—p. 1.
Fate of Orally Administered Soluble Specific Substance of Pneumococcus Types I, II and III. V. Ross, New York.—p. 13.
*Urea Tolerance After Unilateral Nephrectomy in Rabbits. H. T. Karsner, R. Straus, R. A. Moore and R. F. Hanzal, Cleveland.—p. 27.
Correlation Between Histologic Changes and Fate of Living Tubercle Bacilli in Organs of Tuberculous Rabbits. M. B. Lurie, Philadelphia.—p. 31.
Identity of Mechanisms of Type-Specific Agglutinin and Precipitin Reactions with Pneumococcus. T. Francis, Jr., New York.—p. 55.
*Protection of Adrenalectomized Animals Against Bacterial Intoxication by an Extract of Adrenal Cortex. F. A. Hartman and W. J. M. Scott, Rochester, N. Y.—p. 63.
Epidemiology of Fowl Cholera: VI. Spread of Epidemic and Endemic Strains of Pasteurella Avicida in Laboratory Populations of Normal Fowl. I. W. Pritchett and T. P. Hughes, New York.—p. 71.
Serum Sickness in Rabbits: II. Precipitinogen and Precipitins in Relation to Appearance of Reaction. L. Jones and M. S. Fleisher, St. Louis.—p. 79.
*Transformation in Vitro of R Pneumococci into S Forms of Different Specific Types by Use of Filtered Pneumococcus Extracts. J. L. Alloway, New York.—p. 91.
*Accumulation of Iron in Tuberculous Areas: II. Survival Time of Tuberculous Rabbits Injected with Ferric Chloride. V. Menkin, Boston.—p. 101.
*Effect of Bilateral Suprarenalectomy in Adult Albino Rats on Natural and Acquired Resistance to Bartonella Muris Anemia. J. Marmorston-Gottesman and D. Perla, New York.—p. 109.
*Conditions Influencing Disappearance of Living Bacteria from Blood Stream. P. R. Cannon, F. L. Sullivan and E. F. Neckermann, Chicago.—p. 121.
Influence of Age and Duration of Treatment on Production and Repair of Bone Lesions in Experimental Hyperparathyroidism. H. L. Jaffe, A. Bodansky and J. E. Blair, New York.—p. 139.
Arthus Phenomenon: Local Anaphylactic Inflammation in Rabbit Pericardium, Heart and Aorta. D. Seegal, Beatrice Carrier Seegal and Elizabeth L. Jost, New York.—p. 155.
*Id.: Local Anaphylactic Inflammation in Rabbit Brain. L. M. Davidoff, Beatrice Carrier Seegal and D. Seegal, New York.—p. 163.

Immunity to Pneumococcus Types II and III.—When Ross fed the soluble specific substance of type II pneumococcus to rats, little or no increased resistance to the organism was obtained. When the specific substance of type III pneumococcus was fed, an increased resistance to the virulent organism resulted. The percentage of animals protected was smaller than when the whole or the dissolved cell is fed. When the specific polysaccharide of type I was fed, no immunity against type II or III was obtained, and the ingestion of the specific substances of types II and III did not protect rats against the type I organism.

Urea Tolerance After Unilateral Nephrectomy.—Karsner and his associates describe experiments which demonstrate that although for a month after unilateral nephrectomy in rabbits the remaining kidney shows diminished capacity to hold blood urea within the normal range, nevertheless after four months this function is maintained in essentially the same degree as if both kidneys were present. This does not imply that all activities of the kidney remaining after unilateral nephrectomy are potentially augmented, but the data offered justify the conclusion that as the remaining kidney undergoes enlargement its functional capacity increases and the process represents a genuine hypertrophy in the critical sense.

Suprarenal Cortex Extract.—The resistance of suprarenal-deficient rats to bacterial intoxication was significantly increased by Hartman and Scott by an extract of the suprarenal cortex. This was shown both for acute intoxication with killed Bacillus typhosus and for chronic intoxication with killed Staphylococcus aureus. During the height of the bacterial intoxication relatively large amounts of the cortical hormone were apparently required to maintain the animals. The authors consider it probable that a human pyogenic infection imposes a severe load on the suprarenal cortex.

Transformation of R Pneumococci into S Forms.—Alloway states that avirulent R pneumococci derived from S forms of a specific type may be changed by growth in broth containing anti-R serum and a heated, filtered extract of S pneumococci of a different type, into virulent S organisms identical in type with the bacteria extracted. This has been accomplished in the case of R strains derived from type II pneumococci, by the use of extracts prepared from type III and type I S forms. The constituents of the extract supply an activating stimulus of a specific nature in that the R pneumococci acquire the capacity of elaborating the capsular material peculiar to the organisms extracted.

Iron in Tuberculous Areas.—Menkin reports that repeated intravenous injections of ferric chloride are followed by an increase in the survival time of tuberculous rabbits. In the series of experiments reported by him this increase amounted to about 78 per cent over the average survival time of control rabbits. Tuberculous animals repeatedly injected with ferric chloride increase in weight during part of the period of these injections. The level reached in the series studied markedly exceeded that attained by control rabbits. Both control and experimental animals die of generalized tuberculosis. There is no indication at the time of death of any differences in the degree of pathologic involvement between the two groups of animals.

Bartonella Muris Anemia.—According to Marmorston-Gottesman and Perla, normal adult Wistar rats (noncarrier stock) are readily infected with Bartonella muris and develop a severe anemia if large amounts of infecting material are used. The normal adult rat of Wistar stock possesses a relatively high natural resistance to spontaneous infection with this organism. Bilateral suprarenalectomy in Wistar rats lowers the natural resistance to a subsequent infection with Bartonella muris. This procedure does not alter the type of tissue response to the virus but lowers the natural resistance of the rat to toxic effects of the infection. The acquired immunity to Bartonella muris conferred by a first infection is not broken down by subsequent suprarenalectomy. The authors believe that the mechanisms of acquired and natural resistance are dependent on different physiologic processes in the organism and are not merely quantitative variations of the same process as is generally assumed.

Disappearance of Bacteria from Blood Stream.—Cannon and his associates noted that the simultaneous intravenous injection into normal and actively immunized rabbits of equal quantities of living staphylococci or paratyphoid bacilli is followed by a distinctly accelerated rate of removal of the bacteria from the blood stream of the immune animals. This altered reactivity is due essentially to specific active immunization. The bacteria pass rapidly through the capillary bed of the lungs, extracellularly and dispersed for the most part, and become generalized through the blood stream. They are quickly removed from the circulating blood in the immune animals and less rapidly in the normal ones, by various organs, particularly the liver and spleen, where they accumulate in enormous numbers, become adherent to the lining membrane of the sinusoids of the liver and apparently to the macrophages of the spleen and are phagocytosed by the macrophages and leukocytes in these organs. Associated with this effect are morphologic changes in the bacteria as shown by swelling, loss of staining power and evidences of increased cohesiveness and decreased viscosity, these changes being apparent as early as two minutes after their intravenous injection. Since these changes are not seen to a marked degree within the lungs or other organs, they are probably the result of a local antigen-antibody reaction of a bacteriotropic type in the two organs generally considered to be most actively concerned with the production of immune bodies. By means of this accelerated bacteriotropic effect in the actively immunized animals, phagocytosis is facilitated and intracellular digestion of the bacteria is enhanced.

Arthus Phenomenon.—Sixteen out of seventeen rabbits actively sensitized by Davidoff and his associates to various antigens by repeated cerebral and intravenous injections showed on intracerebral reinjection of the same antigen local anaphylactic inflammation of the brain at the site of inoculation. Six out of twenty rabbits actively sensitized to either horse serum or egg albumin by extracerebral injection showed, on introduction of the homologous antigen into the cerebrum, local anaphylactic inflammation at the site of inoculation. The pathologic picture of the Arthus phenomenon in the brain of the rabbit resembled that seen in the skin, after allowing for differences in the fundamental structure of the tissues involved. None of the control animals exhibited lesions comparable to those found in the experimental animals. A few controls showed slight hemorrhages due to mechanical injury of blood vessels. Clinical symptoms of varying degrees of severity, often leading to the death of the rabbit, were observed in the sensitized animals. These symptoms were referable to the site of injection.

Journal of Urology, Baltimore

26: 697-761 (Dec.) 1931

*Ascending Infection to Kidney: II. Experimental Study. W. J. Carson, Milwaukee.—p. 697.
*Perinephric Abscess. H. A. Fowler and H. N. Dorman, Washington, D. C.—p. 705.
*Intradermal Immunization in Genito-Urinary Diseases. B. C. Corbus, Chicago.—p. 727.

Ascending Infection to Kidney.—Carson states that since there is a free communication between the lymphatics of the muscular coat of the bladder and that of the ureter, the lymph current of both the bladder and the ureter is from the mucous coat toward the fibrous coat. The perivascular lymphatics communicate with one another in a transverse as well as a longitudinal direction by means of vertical and oblique branches. The lymphatics of the upper portion of the ureter communicate with the lymphatics of the kidney pelvis, and they in turn communicate with the lymphatics of the kidney which accompany the blood vessels forming a capillary network in the cortex, surrounding all tubules like the blood capillaries; the lymphatics of the cortex communicate with those of the capsule. Infections produced experimentally by the author by the injection of an eighteen-hour broth culture of (1) paratyphoid bacillus into the bladder, intramural portion of the ureter or into the wall of the ureter (1 or 2 cm. proximal to the bladder), (2) Staphylococcus aureus and (3) Bacillus coli into the muscular wall of the ureter (distal end) were seen to extend upward along the perivascular lymphatics into the kidney. The necropsies showed no evidence of infection elsewhere in the abdomen or thorax, with the culture from the heart's blood being negative in each experiment; when the organisms were injected into the lumen of the ureter no evidence of infection was produced, save in one rabbit in which a cystitis was produced by the bacteria injected.

Perinephric Abscess.—According to Fowler and Dorman, perinephric abscess is relatively uncommon, compared with surgical lesions within the kidney. The metastatic type is most important from the standpoint of etiology and diagnosis. Diagnosis in the early stages is most difficult. Routine urologic study is important in excluding primary renal disease but of no positive diagnostic value in the metastatic type. Chief diagnostic points are: (1) history of peripheral infections, particularly suppurative skin lesions such as furuncles, boils, carbuncles, paronychia, otitis media, coccus infection of upper urinary tract; (2) unexplained fever; (3) high leukocytosis; (4) roentgen examination, and (5) costovertebral pain and tenderness. As a treatment this is directed to the primary renal lesion in the secondary type. Nephrotomy or nephrectomy is usually required. In the metastatic cases simple drainage is usually followed by complete recovery. The authors emphasize the importance of thorough drainage.

Intradermal Immunization.—Corbus believes that the function of the skin is more than a simple sheath protector. Whatever irritates the skin, either mechanical or bacterial in nature, not only irritates the histocytic elements of the skin but also as a result of involuntary nervous stimuli promotes the production of polymorphonuclear leukocytes. The antigenic response from some toxins if given intradermally seems capable of producing general immunity for their respective bacteria. The author has obtained good results with intradermal immunization in infections of the genito-urinary tract caused by the gonococcus, staphylococcus, streptococcus, colon bacillus and tubercle bacillus.

Maine Medical Journal, Portland

22: 237-260 (Dec.) 1931

Notes on Common Types of Goiter. I. M. Webber, Portland.—p. 239.
Anal Fissure: Its Detection and Cure. J. F. Montague, New York.—p. 245.
Unusual Foreign Body in Male Urinary Bladder: Case. C. N. Peters, Portland.—p. 248.

Medical Bull. of Vet. Adm., Washington, D. C.

7: 1107-1243 (Dec.) 1931

Treatment and Course of Neurosyphilis: Case Reports. R. T. O'Neil and F. L. Wright.—p. 1107.
*Arrested Pulmonary Tuberculosis. L. H. Fales.—p. 1121.
Study of Cancer in Ex-Service Men. P. B. Matz.—p. 1128.
Oculogyric Crises in Chronic Epidemic Encephalitis: Two Cases. M. L. Compton.—p. 1150.
Roentgenologic Diagnosis of Pulmonary Tuberculosis. W. R. Wynne.—p. 1153.
*Pneumolysis in Pneumothorax with Adhesions: Five Cases. S. T. Taylor.—p. 1160.
Hydronephrosis. J. Christiansen.—p. 1162.
Tumors of Urinary Bladder. H. A. Brady.—p. 1165.
Hyperthyroidism in Tuberculosis. H. L. Ison.—p. 1170.
Physical Therapy in Raynaud's Disease. C. R. Brooke.—p. 1174.
Rapid Paraffin Technic. W. L. McNamara.—p. 1179.
Preparation of Mouth for Early Artificial Dentures. O. A. Grove.—p. 1180.

Arrested Pulmonary Tuberculosis.—Fales believes that on account of the latency of pulmonary tuberculosis and the well being of patients following rest without corresponding changes in the anatomic condition of the lungs, lack of constitutional symptoms should receive but slight consideration in determining an arrest. On the other hand, constitutional symptoms, if found to be due to tuberculosis, may be considered an expression of activity. As it seems to have been conclusively demonstrated that physical signs, especially râles, are of no value in determining progression and retrogression of a tuberculous lesion, it follows that they have no place in a schema of classification. The roentgen ray must be considered the main reliance in determining an arrest or a healed lesion and should receive this place of prominence in a schema of classification. When, by the comparison of serial roentgenograms at quarterly intervals, a lesion is found which is hard and fibrosed and has remained stable for six months, one should consider that an arrest has been attained, provided an additional six months is passed with carefully graduated exercise and observation without reactivation of the disease.

Pneumolysis in Pneumothorax with Adhesions.—Taylor reports five instances of pneumolysis in pneumothorax with adhesions. All the patients had been receiving pneumothorax therapy for six months or more before the pneumolysis operation. The pleural pressure had been maintained as high as possible without causing objectionable symptoms. Adhesions were unyielding and were persistently obstructing suitable collapse. Cavities were unclosed, and diseased areas were not immobile. Clinical pictures indicated variable degrees of unfavorable progress. Then all were operated on by means of the thoracoscope and the electric cautery. Eight months or more since the adhesions were cut, all the patients have gained weight and have ceased coughing; they have decreased sputum, which is bacillus free; their body temperatures are normal and they are so generally improved that the outlook is more hopeful from every point of view. The results seem to illustrate the necessity for obtaining complete collapse of diseased areas at least in certain conditions occurring during pneumothorax therapy. They also appear to exemplify the use of the thoracoscope and the electric cautery as an efficient means for eliminating obstructing adhesions and thereby converting unsatisfactory cases showing rapid and sustained improvement.

Medical Journal and Record, New York

135: 1-52 (Jan. 6) 1932

Acute Upper Respiratory Infection in Infants and Children. S. A. Cohen, New York.—p. 1.
Induced Pneumothorax in Treatment of Pulmonary Tuberculosis. B. P. Potter, Baltimore.—p. 5.
Bran Anaphylaxis as Clinically Manifested in Study of Asthma: Its Relationship to Meteorotelluric Phenomena and Nutrition from an Unstable Blood Etiologic Viewpoint. G. N. Jack, Buffalo.—p. 9.
Occurrence and Significance of Leukopenia: Review of Recent Literature. C. W. Mucklé, Philadelphia.—p. 12.
Radiation Theory of Energy. H. Goodman, New York.—p. 14.
Is Official Dentistry Ready to Adopt the Stomatologic Program: Discussion of a Paper by Alfred J. Asgis. G. M. Anderson, Baltimore.—p. 16.

Minnesota Medicine, St. Paul

15: 1-72 (Jan.) 1932

*Diagnosis and Treatment of Major Infections of Hand. S. L. Koch, Chicago.—p. 1.
*Intra-Abdominal Local Anesthesia. R. P. Caron, Minneapolis.—p. 8.
*Primary Carcinoma of Bronchus: Report of Seventy-One Cases in Which Diagnosis Was Made by Bronchoscopic Examination. P. P. Vinson, Rochester.—p. 15.
Review of Nontuberculous Cases Originally Diagnosed Pulmonary Tuberculosis. R. M. Burke, Oak Terrace.—p. 18.
Significance of Infraclavicular Pulmonary Tuberculosis. E. H. Jorris, Excelsior, Wis.—p. 23.
Tuberculin Test. J. A. Myers, Minneapolis.—p. 26.
Extra-Ocular Palsies. G. R. Kamman, St. Paul.—p. 31.
Recent Advances in Study of Cause and Treatment of Leukorrhea. E. D. Plass, Iowa City.—p. 36.
When Does Disease Begin? Can This Be Determined by Health Examination? C. H. Mayo, Rochester.—p. 40.

Major Infections of Hand.—According to Koch, the major infections of the hand—acute lymphangitis, infections of the tendon sheaths and infections of the fascial spaces of the palm—present definite and unmistakable diagnostic criteria. Lymphatic infections should be treated conservatively and operated on only when there are unequivocal signs of pus formation. Infections of the tendon sheaths and fascial spaces of the palm should be drained carefully and adequately as soon as the diagnosis is made. In the postoperative care of hand infections the prevention of secondary infection, early mobilization and the maintenance of the hand in the position of function during the period of enforced immobilization are important details of treatment.

Intra-Abdominal Local Anesthesia.—Caron reviews some of the advantages, disadvantages and important technical points in the administration of intra-abdominal splanchnic anesthesia, together with the neuro-anatomy of the viscera. He states that local anesthesia for intra-abdominal operations is definitely applicable in cases in which general or spinal anesthesia is contraindicated, in cases of spinal anesthesia in which the anesthesia has waned, and is the method of choice in major abdominal procedures in all cases of prolonged debility from disease, and in the aged. Familiarity with the anatomy, and particularly the neuro-anatomy, of the field of operation is essential before one attempts to adopt this method. Sympathetic anesthesia can be established by injecting the solution into the mesenteries, adnexal supports, subperitoneally and perivascularly.

Primary Carcinoma of Bronchus.—Vinson believes that primary malignant disease of the bronchus is not rare. Any infiltration at the hilus or base of the lung may be the result of malignant disease. Pulmonary symptoms are usually present, but in some cases they may be mild or absent. Bronchostenosis is the most frequently observed physical sign of the disease. Patients suffering from malignant growths in the bronchus have had pulmonary symptoms for many years, and it is possible that prolonged pulmonary suppuration may predispose to the development of carcinoma. Bronchoscopy offers the only means of making a relatively early and accurate diagnosis of the presence of a malignant lesion of the bronchus and is usually indicated in chronic pulmonary disease if tuberculosis is an unlikely etiologic factor. Radium and roentgen treatment has been followed by beneficial results and should be employed unless contraindicated by extensive metastasis or extreme weakness.

New England Journal of Medicine, Boston

205: 1273-1322 (Dec. 31) 1931

*Syphilis of Stomach. J. C. McCann and J. J. Dumphy, Worcester, Mass.—p. 1273.
*Takata-Ara Test on Spinal Fluid: Results of Five Hundred Cases. R. W. Daffinee and Eulalia F. Grzebieniowska, Boston.—p. 1277.
Unusual Renal Anomalies: Cases of Renal Agenesis, Unilateral Congenital Renal Hypoplasia and Crossed Renal Dystopia. E. R. Mintz and J. D. Stewart, Boston.—p. 1282.
Organized Medicine's Interest in Health Insurance Plan for Small Wage Earners. P. K. Brown, San Francisco.—p. 1285.
Progress in Tuberculosis. J. B. Hawes 2d and M. J. Stone, Boston.—p. 1292.

Syphilis of Stomach.—McCann and Dumphy present a case of syphilis of the stomach in which the lesion involved the antrum, causing high-grade obstruction. This increased rapidly, despite vigorous antisyphilitic treatment, making surgical intervention urgent. The diseased antrum was resected and a posterior Polya-Balfour anastomosis made. The patient had a satisfactory convalescence. The specimen showed changes characteristic of syphilis, chiefly thickening of the submucosa and muscularis, lymphocytic infiltration, and obliterative endarteritis. Since operation, antisyphilitic treatment has been continued. At the present time, a year after operation, the patient is in excellent condition, has gained weight, has no indigestion and there is no anemia. The blood still shows a positive Wassermann reaction.

Takata-Ara Test.—Daffinee and Grzebieniowska believe that the Takata-Ara reaction cannot replace the spinal fluid Wassermann test in the diagnosis of neurosyphilis. The reaction is of more value as a corroborative test than as a diagnostic procedure. The Takata-Ara reaction provides an easy, rapid and reasonably accurate test for the detection of abnormal spinal fluids. The ease of performance and the simplicity of interpretation lend themselves to the use of the small laboratory or the practicing physician or neurologist.

Occupational Therapy and Rehabilitation, Baltimore

10: 363-444 (Dec.) 1931

Tb Plus the Three R's. D. A. Stewart, Ninette, Manitoba, Canada.—p. 369.
Music in Mental Hospitals. Martha A. Kalms, Philadelphia.—p. 381.
Value of Volunteer Organization in Promoting Occupational Therapy. E. C. Foster, Indianapolis.—p. 387.
Museum Meanderings: XI. The Art Institute of Chicago, Illinois. W. R. Dunton, Jr., Chicago.—p. 393.

Ohio State Medical Journal, Columbus

28: 1-80 (Jan.) 1932

Mortality of Gallbladder Surgery. F. C. Herrick, Cleveland.—p. 21.
Course and Prognosis of Arthritis. R. M. Stecher, Cleveland.—p. 25.
Acute Yellow Atrophy of Liver Due to Use of Small Amount of Cinchophen: Report of Case. S. C. Lind, Cleveland.—p. 28.
Psychoneuroses Observed Among Ex-Soldiers. P. G. Tait, Toledo.—p. 30.
Cranial Cerebral Injuries. J. Dickenson, Cleveland.—p. 33.

Public Health Reports, Washington, D. C.

46: 3103-3155 (Dec. 25) 1931

*Typhus Fever: Typhus Virus in Feces of Infected Fleas (Xenopsylla Cheopis) and Duration of Infectivity of Fleas. E. T. Ceder, R. E. Dyer, A. Rumreich and L. F. Badger.—p. 3103.
*Anopheles Atropos D. and K.: New Potential Carrier of Malaria Organisms. B. Mayne and T. H. D. Griffitts.—p. 3107.

Typhus Fever.—Ceder and his associates describe experiments which suggest that a probable mechanism by which endemic typhus fever may be transmitted is through the rubbing of infected feces into wounds made by the biting of the flea or by scratching.

Anopheles Atropos D. and K.—Mayne and Griffitts describe the characteristics of Anopheles atropos D. and K. and present it as a new potential carrier of Plasmodium vivax. In infectivity tests it proved equal in efficiency to Anopheles quadrimaculatus, A. crucians and A. punctipennis used as controls under similar or more favorable conditions.

South Carolina Medical Assn. Journal, Greenville

27: 297-320 (Dec.) 1931

Tumors of Duodenum, Jejunum and Ileum. W. L. A. Wellbrock, Rochester, Minn.—p. 300.
Pernocton as an Analgesic in Obstetrics: Review. J. D. Guess, Greenville.—p. 302.
Lobar Pneumonia: Salt-Alkali Treatment with Allusion to Use of Carbon Dioxide Gas. W. T. Lander, Williamston.—p. 304.

Surgery, Gynecology and Obstetrics, Chicago

54: 1-128 (Jan.) 1932

*Cellular Studies on Thyroid Gland. G. Zechel, Chicago.—p. 1.
*Tumors of Bile Ducts. J. M. Marshall, Rochester, Minn.—p. 6.
*Association of Liver in Disease of Biliary Tract. E. S. Judd, A. C. Nickel and W. L. A. Wellbrock, Rochester, Minn.—p. 13.
Cholecystographic Criteria in Surgical Diagnosis: Analysis and Operative Check in 233 Patients. B. L. Fleming, Philadelphia.—p. 17.
*Primary Idiopathic Abscess of Liver. C. F. Dixon and G. T. Murphy, Rochester, Minn.—p. 20.
*Obstructions to Ureter Produced by Aberrant Blood Vessels. H. H. Young, Baltimore.—p. 26.
Treatment of Acute Empyema. R. B. Bettman, Chicago.—p. 39.
Differential Diagnosis and Treatment of Acute Osteomyelitis of Upper End of Femur, Involving Hip Joint. P. W. Nathan, New York.—p. 52.
Chronic Subdural Hematoma: Simple Drainage as Method of Treatment: Eight Cases. H. W. Fleming and O. W. Jones, Jr., San Francisco.—p. 81.
Congenital Dislocation of Hip: With Especial Consideration of After-Treatment Following Closed Reduction. W. I. Galland, New York.—p. 88.
*Primary Adenocarcinoma Arising in Meckel's Diverticulum. P. Michael and H. G. Bell, San Francisco.—p. 95.
*Injection Treatment of Varicose Veins: Three Hundred and Twenty-Five Cases. C. Weeks and R. S. Mueller, New York.—p. 98.
Necessity for Bronchoscopic Examination in Distinguishing Primary Carcinoma of Bronchus from Suppurative Disease of Lungs. P. P. Vinson, Rochester, Minn.—p. 105.
Pelvic Diaphragm in Female: Its Form, Function and Method of Repair for Laceration. H. Hill and D. T. van Del, Kansas City, Mo.—p. 108.

Cellular Studies on Thyroid.—According to Zechel, two types of cells exist in the parenchyma of the thyroid: (1) the common thyroid cell, which is the far prevailing type, and (2) the less frequent large cells. This ignored type of cell is distinguished from the common cells of the thyroid in many respects; the cell bodies are larger and, in section, appear triangular, multangular or irregular, showing marked variations between these forms. When arranged in small groups they flatten one another on adjacent surfaces, hence giving rise to various shapes. The large cells are located more often in the interfollicular cell groups than in the follicular wall, and they occur in greater number in the regenerating than in the resting gland. They may be classified in two groups, those with nuclei possessing a distinct chromatin network, and those with nuclei staining densely and evenly. But the latter compose only a small group. In regard to the function it is believed that they are concerned (1) with the formation of new follicles, (2) with the production of colloid, and (3) possibly with the inception of follicular destruction.

Tumors of Bile Ducts.—Marshall presents evidence that benign tumors of the bile ducts are extremely rare, that carcinoma is by far the most common neoplasm of the ducts, and that carcinoma of the bile ducts is more common in males than in females. Gallstones were present in 43 per cent of the cases on which the author's study was primarily based. Obstructive jaundice was found in most cases and may be extreme, fluctuating in severity or intermittent. The presence or absence of pain seems to be of little, if any, diagnostic significance. Typical biliary colic is not uncommon with tumors of the bile ducts unassociated with cholecystitis or cholelithiasis. The specific cause of obstructive jaundice is not easily diagnosed before operation. Positive diagnosis is rarely possible. Obstructive jaundice is usually a surgical problem, regardless of the type of lesion that causes the obstruction. Surgical treatment should have a favorable effect because significant symptoms bring the patient to the physician early in the course of the disease, and the tumor is small, slow growing, and late to metastasize. Obstructive jaundice usually kills the patient before the tumor itself has passed the stage of operability. Operation on tumors of the bile ducts carries a high mortality because of the tendency to hemorrhage and the technical difficulties of operation on the biliary tract. Favorable results, however, are attainable.

Association of Liver in Disease of Biliary Tract.—Judd and his associates are certain that the condition of hepatitis or cholangeitis occurs regularly in the presence of cholecystitis. It is also true that this condition of the liver exists when recognizable change cannot be made out in the gallbladder or bile ducts. Probably, under these conditions, hepatitis is secondary to infection in some part of the portal system. It is well known that the liver has a marked detoxifying function and that these changes in the hepatic tissue at times may represent the reaction that has taken place as a result of neutralizing either bacterial or chemical toxins that have been brought to the liver by the portal circulation. The authors feel certain that hepatitis may occur as a primary condition and that symptoms which result from it are similar to those of cholecystitis. Furthermore, removal of the gallbladder in these cases of primary hepatitis will relieve the symptoms. In a group of cases studied, it was clearly shown that bacteria can be found in a certain proportion of these cases. It was difficult, however, to establish the importance of these bacteria from the standpoint of the hepatic change.

Primary Idiopathic Abscess of Liver.—Dixon and Murphy state that the occurrence of idiopathic primary hepatic abscess is relatively rare. The etiology usually is obscure. Diagnosis of primary hepatic abscess is seldom made. It should be based on a recent history of some intra-abdominal surgical procedure, remittent fever, the presence of an enlarged, tender liver, and positive fluoroscopic evidence. Treatment should aim at free drainage, the method instituted depending on the size and situation of the abscess cavity. The physical signs, symptoms and pathologic changes are briefly summarized by the authors. A report of one case is included.

Obstructions to Ureter Produced by Aberrant Blood Vessels.—Young calls attention to the fact that obstruction at or near the ureteropelvic juncture is not infrequently caused by vessels which run from the great vessels to the lower pole of the kidney. He reports two cases in which these vessels caused an acute flexure, kinking and obstruction of the ureter, in one case bilateral and in the other unilateral. In the bilateral case the aberrent vessels obstructing the ureter were clamped, divided and ligated. This was followed by a distinct postoperative reduction in the kidney function on this side. At the second operation he carried out a new procedure (a plastic operation) by means of which it was possible not only to resect the very redundant pelvic sac but also inclosing it to draw the ureter away from the veins so as to remove all possibility of obstruction. The result obtained in this case was completely satisfactory. The same procedure was carried out in the second case also with complete success. In the first case, drainage of a huge hydronephrotic sac was kept up for over a month by means of a retained ureteral catheter passing out through the penile meatus. This resulted in a restoration of this kidney, which was previously functionless, to practically normal function, so that it was possible to save this kidney and to carry out the conservative plastic operation on the pelvis with excellent results.

Adenocarcinoma in Meckel's Diverticulum.—Michael and Bell report a case of primary localized adenocarcinoma arising in Meckel's diverticulum, in a man, aged 67. The growth was removed and a lateral intestinal anastomosis was done. The patient is free from any symptoms of intestinal obstruction or extension of the tumor. Previously there have been described and reported only seven other neoplastic processes that were malignant; all were of the sarcomatous variety. A sedulous search of the literature reveals that this is the first case to be reported of a malignant adenocarcinoma of this type in a true Meckel's diverticulum.

Injection Treatment of Varicose Veins.—Weeks and Mueller believe that the injection treatment is the safest and surest method of ridding a patient of varicose veins. No mortality should occur if patients suffering from recent superficial phlebitis are excluded. This is an effective method of treating varicose ulcer and varicose eczema. In the authors' series, 88 per cent of such cases were healed, and remained so, according to the follow-up observations. The technic should be simple, and single injections at each treatment should be given. Quinine and ethyl carbamate is the solution of choice because of sureness of results and absence of cramp. Forty per cent salicylate solution is also an excellent sclerosing agent, but severe cramp accompanies its use. The authors have found 20 to 30 per cent sodium chloride and dextrose and sodium chloride mixtures unsatisfactory solutions for injections, as they are more apt to cause sloughs and, too, they account for the entire number of recurrences noted at follow up.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Disease in Childhood, London

6: 313-383 (Dec.) 1931

*Clinical Interpretation of Some Hemorrhagic States. W. G. Wyllie and R. W. B. Ellis.—p. 313.
Case of Severe Anemia in New-Born Infant. E. Pritchard and Jean Smith.—p. 325.
Study of Blood Cholesterol in Childhood. Kathleen M. Ward.—p. 329.
*Gangrene in an Infant, Associated with Temporary Diabetes. R. D. Lawrence and R. A. McCance.—p. 343.
*Multiple Puncture Cutaneous Tuberculin Test. W. S. Craig.—p. 357.
*Studies in Juvenile Rheumatism. C. J. McSweeney.—p. 367.

Abnormal Bleeding.—Wyllie and Ellis state that in arriving at a satisfactory conception of the causes of abnormal bleeding the three factors that may be involved must be considered; these are the platelets, the permeability of the capillary endothelium, and the blood plasma. Thus in the case of hemorrhagic purpura in which the process of bleeding involves a diapedesis of erythrocytes through unbroken capillary walls, the blood platelets, which in the majority of cases are much reduced, and the capillary endothelium have been variously held responsible. In typical hemophilia, on the other hand, in which bleeding does not occur with intact capillaries and in which the platelets are normal or slightly raised in number, the blood plasma is generally regarded as being the defective element. From the pathologic standpoint it would appear that in purpura there is a "platelet-capillary" complex responsible for hemorrhage, while in hemophilia the plasma is abnormal. Both these factors may be inherited or both may arise de novo. The mode of transmission differs in the two cases, however, since the hemophilic factor is sex-linked while the purpuric diathesis affects males and females equally. It is of interest to find, therefore, that purpura hemorrhagica occurs not infrequently in the females of hemophilic families. Although difficult to explain on a pathologic basis, a relationship between hemophilia and purpura exists. The evidence is as follows: 1. Abnormal bleeding of the purpuric type occurs in the females of some hemophilic families with, in certain cases, the full picture of thrombocytopenic purpura. 2. Isolated features characteristic of purpura occur in certain cases of hemophilia, and vice versa. 3. Occasionally alternation of the hemophilic and purpuric state may occur in the same individual. Similarly, the same clinical and pathologic picture may be present in primary purpura arising sporadically or familial in origin, and in purpura which is secondary to sepsis, toxins, or other pathologic conditions. In both primary and secondary types the platelet-capillary complex is affected. In considering cases of abnormal bleeding, therefore, it is well to remember that although the great majority can be conveniently classified, a number of atypical cases will remain to remind one that much of the classification is arbitrary and that no absolute division exists between certain disease entities.

Infantile Diabetes with Gangrene.—Lawrence and McCance report a case of gangrene associated with acute diabetes mellitus in an infant aged 18 days. Treatment with insulin resulted in a cure of the gangrene and complete recovery from the diabetes. The authors searched the medical literature from 1850 to the present day for cases of diabetes in infants under 1 year of age. Twenty-six true cases, including their own, are described and discussed. In two complete recovery was established

Tattoo Tuberculin Test.—According to Craig, the multiple puncture method compares favorably with the Mantoux and Pirquet tests in all forms of tuberculosis in the matter of reliability. It has distinct advantages over other methods in ease of procedure, speed of performance, absence of any but momentary slight discomfort, and absence of any tissue destruction even in the most violent reactions. It is of particular value when used in children, especially for a routine method applicable to large numbers. The fact that it requires no particular skill in its performance makes the method especially suitable for use by any one only occasionally carrying out a tuberculin test.

Juvenile Rheumatism.—McSweeney summarizes the results of four years' special study in juvenile rheumatism among

Cardiff school children. The survey showed that 16.9 per thousand of the school population were affected, of whom 5.82 were suffering from rheumatic heart disease. Further evidence of the relative decrease in the prevalence of rheumatic fever at the expense of the milder and more insidious forms of juvenile rheumatism was obtained. Among 550 case histories investigated, the onset of the disease occurred during the winter or spring months in 475 (66.3 per cent). Among 588 rheumatic children, 433 (73.7 per cent) developed the first rheumatic manifestation between the age of 5 and 10 years. Among 626 rheumatic children examined, 225 (35.9 per cent) were found to be suffering from permanent disease of the heart. An investigation of the social conditions under which 600 rheumatic children lived showed that almost 75 per cent of the children were not suffering from the effects of poverty or privation. Further support for the view that dampness of houses is a factor of no etiologic significance in juvenile rheumatism was obtained. The parents of rheumatic children were found to have themselves suffered from juvenile rheumatism in 44.7 per cent of 279 separate family histories investigated, and 385 rheumatic children were found to have 122 brothers or sisters affected with the disease. Although family relationships play some part in the causation of the disease, no conclusive evidence as to the infectivity of juvenile rheumatism came to light. In 6 per cent of 626 cases the onset of the disease was directly postscarlatinal, but the postscarlatinal cases were found to be less likely to present cardiac sequelae than those having the disease independent of scarlet fever. No distinctive type of rheumatic child was recognized, but a majority of the children were fair-haired and had either blue or gray eyes. The incidence of dental caries was found to be no higher in rheumatic than in nonrheumatic children. A clinical description of the earlier phases of rheumatic carditis is given, and the methods and results of hospital treatment in 222 cases are outlined. The significance of throat conditions in juvenile rheumatism is discussed. Figures are given to support the contention that the state of the tonsils is of little importance in the causation of this disease. Further evidence is adduced as to the limitations of tonsillectomy in the treatment of juvenile rheumatism.

British Medical Journal, London

2: 1165-1204 (Dec. 26) 1931

*Ocular Palsies. G. Holmes.—p. 1165.
Importance of Hormones in Menorrhagia. F. Laquer.—p. 1168.
*Some Points in Connection with Treatment of Glaucoma. R. H. Elliot.—p. 1169.
*Displacements of Uterus and Pelvic Floor. S. G. Luker.—p. 1171.
*Chronic Meningococcic Septicemia with Bacterial Endocarditis: Case. W. D. H. Stevenson.—p. 1173.
After-Care of Congenital Pyloric Stenosis. D. Paterson.—p. 1176.
Use of Antiseptic (Quinanil) with Preparations of Gonadotropic Substances. J. M. Robson.—p. 1177.

Ocular Palsies.—Holmes states that in dealing with loss of the power of movement of any part of the body one usually distinguishes those varieties due to structural lesions of, or functional disturbances in, the upper motor neurons which carry impulses from higher centers to the motor nuclei and their nerves, and those the result of lesions of the nuclei and nerves which innervate the muscles directly. The latter are the lower motor neurons or the final common paths, for by them only can nervous impulses reach the muscles. This distinction of two types of paralysis can be profitably applied to the ocular movements, too, though here, owing to the inaccessibility of the muscles to direct examination, some of the characteristic features of each type of paralysis are not readily recognizable. One cannot, for instance, by the ordinary means of examination detect wasting of the ocular muscles or test easily their electrical excitability; but the essential differences are obvious, for in lesions of the upper motor neurons movements as such are lost and sometimes those that normally are excited by certain impulses *only*, while in disease of the lower motor neurons the muscles themselves are paralyzed and react to no nervous message. This can readily be seen by contrasting a left internal rectus paralysis with a palsy of conjugate movement of the eyes to the right, for in the former the left eye is not adducted whether the patient attempts to look to the right or to converge, while in the latter case the left eye comes into the inner canthus as readily and fully as the right when the patient tries to converge; the internal rectus muscle is therefore not paralyzed but fails to contract in a certain movement only; that is, looking to the right. This corresponds to the condition one so frequently meets in an upper neuron paralysis of the limbs, in which no movements may occur in response to voluntary effort but they can be excited reflexly or synkinetically. Owing partly to the necessity of an extremely accurate adjustment of the movements of the two eyes in response to numerous stimuli, and partly, perhaps, to the considerable distance apart of the nuclei from which the ocular nerves arise, the nervous mechanisms which control the ocular movements are more complicated, and according to the part of it which is involved two types of supranuclear palsy can be distinguished—so-called conjugate or associated paralysis in which no movement of the eyes in one or more directions can be obtained by any means, and the true supranuclear palsies in which movement of the eyes in certain directions is lost to certain stimuli only but can be affected by others.

Treatment of Glaucoma.—Elliot believes that the importance and value of ocular massage in glaucoma is not, even now, sufficiently appreciated. There are certainly quite a number of cases under treatment for raised tension of the eye in which massage is either not being used at all or else not to the fullest advantage. The technic is simple, and any patient can be taught to use it for himself. Both hands should be used, and the index or middle fingers should be placed on the upper lid as far apart as possible and with the eyes looking downward. Alternate pressure with each finger in turn will rapidly lower the tension of most eyes, but the pressure must be made toward the center of the eye, whereas the great majority of patients employ a stroking movement which is of little value. Strong pressure should not be used; light, quick, almost butterfly movements will do more good and will not hurt the patient at all. In fact, he often offers the comment that he "hardly felt the massage and does it much stronger himself." It is, however, the light, quick pressure, with the fingers far apart and with every stroke toward the center of the eye that is by far the most effective.

Displacements of Uterus and Pelvic Floor.—According to Luker, one of the common causes of general ill health in women (headaches, fatigue, and aches and pains) is displacements of the uterus and pelvic floor. These are common in women who have borne children. As a result, there is a constant feeling of discomfort and pain. If there are, in addition, symptoms of menstrual dysfunction or disturbances of micturition, and these prey on the mind, carrying fear and apprehension of evils worse than those which really exist, then the joy of life is lost and chronic ill health results. Displacements of the uterus and pelvic floor therefore play an important part in the health of women and should always receive the most careful attention. Until thirty years ago, the majority of those suffering from these displacements were treated with rings and pessaries and were compelled to use a douche every day and receive medical attention every three months. Pessaries are not satisfactory, because they do not cure, require frequent attention, and, if neglected, set up discharge and sepsis. They may even be forgotten and give rise to a foul and blood-stained discharge suggesting carcinoma of the cervix. These instruments have now been superseded by carefully planned plastic operations, which give perfect results. Without doubt this is a great advance in gynecology, comparable with the treatment of hernia by operation instead of by truss. The author groups the displacements under three headings; (1) retroversion or backward displacements of the uterus, (2) weakness of the pelvic floor alone, and (3) descent of the uterus and pelvic floor. The two latter groups include all degrees of the condition generally called prolapse.

Chronic Meningococcic Septicemia with Bacterial Endocarditis.—Stevenson reports a case of chronic meningococcic septicemia with bacterial endocarditis which was characterized by prolonged fever, mainly of a daily intermittent type with occasional rigors, with pronounced weakness and loss of energy, and with symptoms that may be grouped as a meningismus. No benefit accrued from specific serum treatment: in fact, the impression of the clinician was that it exacerbated the symptoms, perhaps by liberation of endotoxins. The infection was due to the meningococcus, as shown by the cultural and serologic tests. It was isolated by blood cultur and the organisms were found as a rule in smears or sections of minute abscesses in various organs. The septicemia was associated with a recent endocarditis, producing toxic changes in the liver and kidney (in the latter probably of some standing), petechiae in the skin, buccal mucosa, pericardium, endocardium and leptomeninges, with minute abscesses in the kidneys, right suprarenal, lung, heart muscle, and in the thickened pia-arachnoid at the base of the brain. The pyemic condition must have developed shortly before death, as evidenced by the size of the abscesses. An acute leptomeningitis was not present, but some of the veins in the pia-arachnoid and of some of the penetrating vessels in the surface of the cortex were packed with polymorphonuclear leukocytes. It is believed that the positive culture from the pia-arachnoid over the vertex and the positive smear from the subdural exudate were due to infected cells escaped from ruptured vessels. A patchy chronic meningitis was present which may have been the residue of an early attack of acute meningitis occurring at the commencement of the illness but recovered from, and the same may be surmised of the subdural exudate.

Indian Medical Gazette, Calcutta

66: 663-772 (Dec.) 1931

*Psychologic Aspects of Opium Addiction. R. N. Chopra and J. P. Bose.—p. 663.
Indian Squills. R. N. Chopra, P. De and B. Mukherjee.—p. 666.
Carbon Tetrachloride in Treatment of Tenia Infections. P. A. Maplestone and A. K. Mukerji.—p. 667.
Group-Specific Substances in Human Body. R. B. Lloyd.—p. 670.
Primary Sarcoma of Heart: Case. V. Nath.—p. 673.
An Anaerobic Urinal. R. C. Wats and W. I. White.—p. 675.
Operation for Utilizing Middle Finger as "Trigger" Finger. P. C. Dutta.—p. 676.

Psychologic Aspects of Opium Addiction.—The experience of Chopra and Bose so far as the opium habit in India is concerned is that in the withdrawal or abstinence symptoms there is a predominant psychic element which can be overcome if the circumstances demand it. This is amply shown by experience of convicts in jail, and men under war conditions habituated to large doses of the drug for years who have to give it up suddenly and yet suffer no marked discomfort or withdrawal symptoms. During the treatment of addicts to rid them of the opium habit, opium can be largely or totally replaced by substances such as gentian or nux vomica preparations in pill form. A series of cases reported by the authors show that if the patient is not aware that he is taking opium, the drug can be effectively given for weeks or months for its therapeutic effect and can be stopped at any moment without producing abstinence symptoms. Physicians, therefore, need not hesitate to use opiates in special cases when these are indicated, provided they conceal the identity of the drug from the patient. The authors now regularly use opiates in this manner in the treatment of asthma, amebiasis or any other condition in which they are likely to benefit the patient. Opiates given in this manner can also be effectively used to detect malingering.

Irish Journal of Medical Science, Dublin

No. **72:** 631-678 (Dec.) 1931

Some Old Journeymen Surgeons. W. Doolin.—p. 631.
Cesarean Section: Its History and Present Status. A. H. Davidson.—p. 642.
*Recent Work on Undulant Fever and Brucella Abortus. A. Thompson.—p. 655.
Brucella Infection: Serologic Study. W. P. O'Callaghan.—p. 663.
Achalasia of Esophagus. W. I. de C. Wheeler.—p. 670

Undulant Fever and Brucella Abortus.—According to Thompson, some attempt must be made to explain the absence of undulant fever in Ireland, where bovine contagious abortion is second in importance only to bovine tuberculosis. Presumably it is due to the low virulence of the Irish strains of Brucella. At least two varieties of Brucella abortus are described, the bovine and the porcine. The former variety is commonly isolated from milk and infected cattle and is of low virulence for guinea-pigs and apparently also for man. The porcine type, as isolated from cases of hog abortion and occasionally also from cattle, shows slight cultural and metabolic differences from the bovine variety, and produces more severe lesions in guinea-pigs, often with multiple abscess formation. The more serious cases of human infection appear to be due to the porcine strain. It is questionable whether there are justifiable grounds for describing two varieties of Brucella abortus, and it would appear more logical to assume different degrees of virulence in one variety, only the more virulent strains being capable of infecting hogs and man.

Journal of State Medicine, London

40: 1-62 (Jan.) 1932

Harben Lectures, 1931: Recent Researches in Prevention of Maternal, Fetal and Neonatal Mortality. Louise McIlroy.—p. 3.
The Health of the London Citizen. E. Graham-Little.—p. 12.
The Graefenberg "Silver Ring" and Interuterine and Intra-Uterine Pessaries. J. H. Leunbach.—p. 37.
Pulmonary Tuberculosis and Marriage. S. V. Pearson.—p. 46.
Clinical Manifestations of Acute Serum Sickness. D. Brewer.—p. 49.

South Africa M. Assn. Journal, Cape Town

5: 765-800 (Dec. 12) 1931

Recent Results of Cancer Research. M. J. A. des Ligneris.—p. 767.
Menace of Cancer Curers. A. J. Orenstein.—p. 776.
Periosteal Sarcoma of Femur. F. S. du Toit.—p. 778.
Radiotherapy in Nonmalignant (Simple) Disease. P. J. Olivier.—p. 781.

Annales des Maladies Vénériennes, Paris

26: 801-880 (Nov.) 1931

Active Method of Complement Deviation for Rapid Serodiagnosis of Syphilis. V. Zaroubine.—p. 801.
*Problematic Influence of Exfoliative Erythrodermia on Evolution of Syphilis. R. Bernard.—p. 807.
*Splenomegaly Before and During Chancre. A. Dreyfuss.—p. 816.
Urethritis Caused by Crystals in Urine. J. E. Marcel.—p. 825.

Therapeutic Influence of Exfoliative Erythrodermia on Evolution of Syphilis.—Bernard believes that a review of the literature and his own personal observations do not warrant the belief that cure can follow exfoliative dermatitis during the course of syphilis. There are some instances of visceral, cutaneous, mucous or serologic syphilis which may give the appearance of recovery in the sense in which one can scientifically speak of recovery in syphilis. One should not be too confident in so-called posterythrodermic recovery but should continue treatment, not forgetting that an intolerance to one therapeutic agent may cause an intolerance to other antisyphilitic remedies.

Splenomegaly Before and During Chancre.—Dreyfuss reviews thirty-seven cases of syphilis in various stages in which he examined the spleen. On the basis of his observations he draws the following conclusions: From a diagnostic point of view moderate splenomegaly is an almost constant sign and appears usually early in the course of primary syphilis. It is a reliable sign in the differential diagnosis of doubtful cases. With regard to therapy, the author's observations show that the date of generalization given in textbooks as the fifteenth day of the chancre is too late since a sign of visceral generalization as absolute as splenomegaly was observed, in a favorable case, three weeks before the Wassermann reaction became positive.

Archives des Maladies du Cœur, etc., Paris

24: 657-719 (Nov.) 1931

*Researches on Mechanism of Sedimentation Test. C. Achard, A. Codounis and E. Hadjigeorges.—p. 657.
Prefibrillatory Ventricular Tachycardias in Course of Block Caused by Auriculoventricular Dissociation. L. Gallavardin and R. Froment.—p. 670.
Action of Lumbar Puncture on Cardiac Rhythm, Especially in Patient with Lesions of Central Nervous System. P. Veil.—p. 680.

Researches on Mechanism of Sedimentation Test.—Taking for granted that the rate of sedimentation is a plasma reaction, Achard and his co-workers undertook the study of sedimentation in relation to the number of red blood cells, their hemoglobin content, the number of white blood cells, the relative proportion of serum proteins (albumin and globulin), and fibrinogen. They also studied the lipoid equilibrium, certain crystalloids, the plasma chlorides, total nonprotein nitrogen, and the changes in alkali reserve. Among the pathologic states they compared obesity, gastric ulcer, neoplastic disturbances, pernicious anemia, catarrhal jaundice, cirrhosis with ascites, lipoid nephrosis, cardiac insufficiency, diabetes insipidus and Addison's disease. They concluded that the factors that can be accorded importance in the sedimentation of red blood cells are, first, the different protein fractions of the plasma, second, the number of red blood cells and their hemoglobin content, and finally the decrease in nitrogenous substances and changes in the acid-base equilibrium. The influence of the lipoid equilibrium seems negative and the influence of plasma proteins is uncertain. The mechanism of sedimentation seems very complex and subject to various influences such as surface tension, and electric charge. But in spite of the complexity in the phenomenon taking place during the changes in sedimentation, there is a certain relationship to the development of the morbid phenomena and the general status of health. The study of sedimentation can consequently furnish some indications as to the development, prognosis and treatment of certain diseases.

Nourrisson, Paris

19: 337-410 (Nov.) 1931

Multivitamin Diets in Digestive and Nutritional Disturbances Following Infection. R. Dubois.—p. 337.
*Efficacy and Dosage of Antidiphtheritic Serum. A. B. Marfan.—p. 351.
Blood and Urine in Physiologic Jaundice of the New-Born. Lereboullet, J. J. Gournay and Detrois.—p. 356.

Efficacy and Dosage of Antidiphtheritic Serum.—Marfan discusses the serum treatment adapted to a child aged 4 years with malignant diphtheritic angina, ordinary diphtheritic angina and laryngeal diphtheria with or without angina and considers the treatment of diphtheria in the new-born. He believes the important factors in treatment are the time and the dose of the first injection—the time may be more important than the dosage. The association of antidiphtheritic with antistreptococcic or antipneumococcic serum is not necessary. He adds that it may be more satisfactory not to use serum and instead incorporate preventive vaccination by the use of toxoid.

Paris Médical

2: 441-452 (Nov. 28) 1931

*Tracheobronchial Adenopathy in Children: Clinical and Roentgenologic Aspects. A. le Marc'hadour, P. Dupire and R. Loé.—p. 441.
Inflammation of Liver and Cytolytic Power of Bile. J. Dumont.—p. 450.

Tracheobronchial Adenopathy in Children.—In four of eighty children examined by le Marc'hadour and his co-workers, fine submammary starchlike crepitations were noted. In each of these cases, the roentgenogram revealed the existence of pathologic hilus shadows in both the anteroposterior and profile films; in some instances the film also presented a fissural image. If these indications are not symptomatic of tracheobronchial adenopathy in the strict sense, the authors believe they may be valuable in tracing a tuberculous hilus that is masked under the form of interlobar pleuritis. The authors conclude that the clinical signs attributed to tracheobronchial adenopathy can be seen in the normal individual. The proportion of cases in which they coexist with hilus or lymph node lesions, revealed by roentgen examination, does not permit one to consider them as presumptive signs. Clinical examination alone does not enable one to make a diagnosis of tracheobronchial adenopathy. Anteroposterior and profile roentgen examination should accompany the other clinical maneuvers. The hilus or the pathologic mediastinal images are of two types: the one, heterogeneous and of irregular contour, is parenchymatous, the other, homogeneous and distinctly spherical, is probably lymph nodal. This disease is rare since, among the eighty children who had a number of clinical signs sufficient to make the diagnosis of tracheobronchial adenopathy, it was present only thirteen times.

Presse Médicale, Paris

39: 1725-1748 (Nov. 25) 1931

*Changes in Serum Proteins in Diabetes Mellitus. M. Labbé and R. Boulin.—p. 1725.
Ventricular Rhythms and Arrhythmia. R. Lutembacher.—p. 1726.

Changes in Serum Proteins in Diabetes Mellitus.—Labbé and Boulin assert that the reports in regard to modification of the proteins of the blood in diabetes mellitus are on the whole contradictory. Their personal research over a period of two years includes 212 determinations on 100 patients. The authors used the following values for normal constituents in 1,000 cc. of plasma: total proteins, 70 to 84 Gm.; serum albumin, 42 to 56 Gm.; serum globulin, 23 to 33 Gm.; and the albumin:globulin ratio as 1.5 to 2. Their researches prove that in the absence of other complications that would modify the blood proteins, 68 per cent of the patients with diabetes mellitus have an increase in serum albumin, sometimes to enormous figures, but with an average at 61.85 Gm.; the serum globulin on the contrary is not modified in 56 per cent of the patients and the average figure is 29.01 Gm. In 61 per cent of the patients the total serum protein is increased to an average of 92.99 Gm. and the value of the albumin:globulin ratio in 58 per cent of the patients reaches the 4.36 figure, with an average of 2.32. Therefore, in more than half of the patients with diabetes mellitus, there is an increase in total serum proteins, principally an increase in serum albumin, and an elevation in the albumin:globulin ratio. Hyperalbuminemia is even more frequent (83.33 per cent) when there is a disturbance in nutrition. The duration of the disease and the age of the patient do not influence these figures. Several patients observed during coma, however, did not show any deviation from the normal (albumin:globulin ratio, 2.02). Diabetes complicated by pulmonary tuberculosis revealed hyperalbuminemia in only 50 per cent; complicated by cirrhosis it revealed hypo-albuminemia, hyperglobulinemia and an inversion in the albumin:globulin value to 0.88; one case, complicated by nephrosis, showed a normal globulin value, a fall in the albumin value and albumin:globulin value of 0.68; in three cases of bronze diabetes the average value for the albumin:globulin ratio was 2.64; while the serum proteins in two patients with diabetes complicated by exophthalmic goiter did not differ from those with uncomplicated diabetes. The usual therapy with or without the administration of insulin led to a decrease in total protein and albumin in 70 per cent and a return to normal in 50 per cent of the patients treated. But the improved conditions did not last and there were oscillations in results. The maximum values in total protein and particularly albumin are found in diabetes mellitus, not in conditions such as obesity and hypertension since these are hardly ever associated with diabetes with denutrition and in which the serum protein changes are the same as in diabetes without denutrition. The interdependence between glycosuria and the disequilibrium in blood proteins is proved when it is seen that in the majority of cases the blood proteins become more or less normal when the glycosuria disappears. Two other factors are to be considered; namely, the mechanism of the concentration of the blood and the disturbance in the elaboration of plasma proteins. Dehydration with increased concentration and thickening of the blood has been noted in diabetes and particularly during coma. At the same time there is an enormous increase in blood proteins, chlorides and urea, and an increase in erythrocytes. Concentration of the blood during coma does not explain the hyperalbuminosis; it also seems impossible to establish any law of causality between the volume of urine eliminated and variations in blood proteins; nor can one explain why the albumin varies more than the globulin. It is suggested that disturbance in formation of plasma proteins is really due to an overproduction of serum albumin and therefore due to a disturbance in hepatic function. Obesity with a similar disturbance may therefore be related to diabetes.

39: 1789-1804 (Dec. 5) 1931

*A New Hypertensive Syndrome. H. Vaquez and D.-M. Gomez.—p. 1789.
Antispasmodic Medication in Pathology of Intestine. P. Chêne.—p. 1793.

A New Hypertensive Syndrome.—Vaquez and Gomez assert that an isolated mean value for hypertension should be added to the syndromes of acute, paroxysmal or permanent hypertension. An increase in the mean pressure is its most important sign and can reveal unsuspected morbid conditions and explain their relationship and cause. This new value for hypertension is frequently found by chance in an apparently common disturbance, in the course of a syndrome with a suspected hypertension which is not confirmed by the usual sphygmomanometric procedures, or in the presence of cardiac dystrophies ranging from simple arrhythmia to angina pectoris with sudden and progressive failure of the heart. Elevation of the mean pressure is of great diagnostic value. It persists, in contradistinction to the extreme pressures which vary under various influences; the value is quite high, 4, 5 or 6 cm. of mercury above the normal value. The sphygmomanometric curves take the curious form of a "camel's hump." But this type of curve is not constant in the initial phase of the mean hypertension and, although diagnosis is positive when it is present, its absence does not authorize the rejection of such a diagnosis. The authors find that the elevation of the mean pressure in the course of pregnancy is a premonitory sign of eclampsia; that mean hypertension can run parallel to systolic hypertension or independent of it; that its persistence following eclamptic attacks ought to preclude a recurrence, and finally that its progressive diminution in the course of repeated crises means improvement and cure. Furthermore, the researches seem to concur with the conclusions of ophthalmologists that there is a relationship between glaucoma and dystrophies in the small or large vessels of the vascular system demonstrated as arterial hypertension with an increased mean pressure. It is further demonstrated that irregularities in cardiac rhythm are capable of causing hypertrophy of the heart and an elevated mean hypertension. This has as a necessary corollary a progressive increase in the size of the heart and in the diameter of the aorta. It is suggested that the study of mean hypertension may help to explain primary enlargement of the heart with unknown pathogenesis.

Revue Belge des Sciences Médicales, Louvain

3: 785-904 (Aug.-Sept.) 1931

- Roentgen Therapy and Radium Therapy of Hyperthyroidism. J. Maisin, F. van Goidsenhoven, H. Vassiliadis, L. Jacqmin and J. Steenhout.—p. 785.
- *Aberrant Lateral Thyroids. L. van den Wildenberg and A. Dupont.—p. 827.
- Left Frontal Tumor with Amnesic Aphasia: Contribution to Motor Aphasia. P. van Gehuchten.—p. 831.
- Bismuth Medication. N. Yernaux.—p. 841.
- Embryonic Sympathomas. Marie Rome.—p. 853.
- Galactose Fixation. J. Arcq.—p. 860.
- Calcium Changes During Cure of Experimental Rickets. J. Morelle.—p. 874.
- Reticulocytes in Aplastic Anemia. P. Lambin and M. J. Gerard.—p. 891.

Aberrant Lateral Thyroids.—According to van den Wildenberg and Dupont, aberrant lateral thyroids are so seldom encountered that they have seen only two cases in 1,100 operations for goiter. The first occurrence was in a youth, aged 19, who had a voluminous bilateral goiter and five tumors the size of a hen's egg, three at the right and two at the left, strung along the lateral aspect of the neck, from the angle of the lower jaw to the supraclavicular fossa. No connection was found between these tumors at operation and they were all removed. Three months later the patient reappeared with another tumor of the same size but under the left angle of the jaw and corresponding to the extirpated one on the right. It also was removed. Microscopic examination of these tumors showed Hassall's concentric corpuscles within the thyroid tissue. The patient has remained in perfect health four years after the operation. The second occurrence was in a man, aged 63, who for several months had a painless tumor the size of a pigeon's egg in the right supraclavicular fossa. The tumor had enlarged during the previous five weeks. This patient showed a moderate benign hypertrophy of the thyroid slightly more developed to the left and in the right supraclavicular fossa a hard and immovable tumor of the size of a goose's egg. The patient did not have exophthalmos, tachycardia or tremors. At operation this tumor was found to be adherent to the surrounding tissues and to enclose completely the subclavian vein, which had to be ligated. Histologic examination proved that the tumor was malignant, and although the patient has had no local recurrence his general condition has steadily become worse. The localization of the tumors in the first patient and the existence of thymus tissue within the thyroid tissue of these tumors incline the authors to believe that they are an abnormal evolution of the lower branchial clefts. They recommend extirpation of all aberrant lateral thyroids on account of their tendency to become malignant.

Revue Française de Gynécologie et d'Obst., Paris

26: 573-620 (Nov.) 1931

- Postpuerperal Metrorrhagia. A. Grosse.—p. 573.
- *Filhos's Caustic in Ambulatory Treatment of Chronic Cervical Metritis. A. Chalier.—p. 587.
- Tuberculous Meningitis During Pregnancy: Case. E. Gaujoux and Boissier.—p. 591.
- Reconstruction of a Vagina by Two Prepuce Grafts. R. Petit.—p. 605.

Filhos's Caustic in Ambulatory Treatment of Chronic Cervical Metritis.—Chalier asserts that the best means of treatment for chronic cervical metritis is cauterization of the uterus using Filhos's caustic. Cauterization can be performed without hospitalization if certain precautions are taken. He mentions three conditions for successful and innocuous cauterization. The first condition is the necessity for a good instillation; the cauterization must be done carefully and under perfect asepsis. The second condition consists in the necessity for a good preliminary examination. This should include digital examination of the internal genitalia and also examination of the cervix uteri with a speculum. This examination should be repeated before each cauterization from the first to the last. Filhos's caustic is absolutely contraindicated in acute metritis and also chronic metritis with salpingitis. A residual adnexitis or a painful parametritis does not constitute a contraindication. The third condition consists in the avoidance of all intra-uterine maneuvers, particularly dilation, immediately preceding cauterization. In general, the author advises light and regular cauterizations; that is to say, they should be of an equal intensity at every point of the diseased cervical mucosa, but without too many repeated applications at any one place. In exceptional cases, thirteen or fourteen cauterizations may be necessary; but in the majority one, two or three treatments are sufficient. The treatments should be made at intervals of fifteen to twenty days. These precautions eliminated all accidents and most favorable results were obtained; in only one case of chronic metritis was it necessary for the author to amputate a cervix with a bistoury.

Schweizerische medizinische Wochenschrift, Basel

62: 1-24 (Jan. 2) 1932

- More Prophylaxis in Obstetrics. C. Brunner.—p. 2.
- *Aspects of Schüller-Christian's Disease. A. Gigon.—p. 4.
- *Atypical Cases of Renal Tuberculosis. R. Allemann.—p. 6.
- Tests of Diphtheria Vaccines. G. Sobernheim.—p. 10.
- Extent of Variations in Inorganic Composition of Living Tissues. F. Steffen.—p. 13.
- Parenteral Calcium Therapy in Influenza. C. Hablützel—p. 15.

Aspects of Schüller-Christian's Disease.—Gigon directs attention to a syndrome in which the hypophyseal symptoms predominate; namely, diabetes insipidus, or adiposogenital dystrophy, also acromegalic symptoms, exophthalmos and defects of the bones. After American authors, who have investigated this syndrome, it is designated as Schüller-Christian's disease. The author observed this syndrome in a woman, aged 48, and relates his observations. There was marked acromegaly, an enlarged sella turcica, also diabetes mellitus, polyuria, enormous lipoidemia, especially hypercholesterolemia and changes in the carbon, nitrogen and electrolyte contents of the blood. The bone defects consisted of osteosclerotic foci of lipoid granuloma in the diaphysis and metaphysis of the tubular bones, and other bones showed defects which were surrounded by osteoplastic formations. The author is convinced that these changes in the bones cannot be entirely explained as a result of acromegaly, but that they are in causal relation with the lipoidosis. Of the cardinal symptoms of the Schüller-Christian disease the following were present in this case: hypophyseal symptoms, especially acromegaly and hypercholesterolemia, also changes of the bones, exophthalmos and xanthomatosis. A symptom that is ordinarily not found in this syndrome but was present in this patient is diabetes mellitus. Another unusual factor was the age of the patient, for this form of lipoidosis occurs almost exclusively in young persons. Beyond the age of 40 the disease is rare.

Atypical Cases of Renal Tuberculosis.—Allemann reports several cases of renal tuberculosis with unusual clinical manifestations. The first group was characterized by colics, the second group by hematuria. In regard to hematuria, the author points out that it may also result from tuberculous ulcerations of the bladder. The third group of atypical cases of renal tuberculosis was conspicuous for its lack of symptoms. The renal tuberculosis was discovered in the course of a careful general examination. The author discusses the differential diagnostic difficulties on the basis of reports in the literature and of his own observations.

Policlinico, Rome

38: 1887-1922 (Dec. 21). Practical Section

- *Malariotherapy by Means of Anopheles. A. Pozzi.—p. 1887.
- *Method and Value of Registering Readily Visible Electrocardioscopic Heart Beats During Surgical Operations. G. Egidi.—p. 1893.
- Acute Cholecystitis Simulating Puerperal Infection in Women Operated on for Cesarean Section. F. G. Trogu.—p. 1898.

Malariotherapy by Means of Anopheles.—Pozzi employed malariotherapy in dementia paralytica by means of Anopheles;

but, instead of using insects captured in the adult stage and then infecting them, he preferred to employ mosquitoes raised in the laboratory. In the Clinica medica at Rome, he has established Anopheles breeding places, beginning with larvae in the second, third and fourth stage, and, by using a careful technic, has succeeded in keeping infected Anopheles alive up to six months. The author calls attention to the advantages of his method as compared with inoculation with malarial blood, and is convinced that it would be advisable to establish malarization centers, in order better to diffuse malariotherapy in dementia paralytica and in other types of morbidity.

Registering Visible Electrocardioscopic Heart Beats During Operations.—Egidi points out and explains the method of constructing and using, in ordinary operative rooms, an apparatus that converts electrocardioscopic records of the currents emanating from heart muscle into readily visible forms.

Rivista di Clinica Medica, Florence

32: 641-676 (Aug. 15) 1931

*Roentgen Diagnosis of Chronic Appendicitis. G. Becchini.—p. 641.
Bilirubin Content of Sputum in Pneumonia. O. Giannetti.—p. 656.
Relations Between Uricemia and Oxalemia. G. Corradini and C. Pegoraro.—p. 665.

Roentgen Diagnosis of Chronic Appendicitis.—Becchini concludes from his researches that the morphologic details derivable from a roentgenologic examination of an injected appendix have only a coadjuvant value for the diagnosis of appendicitis. They do not constitute specific pathognomonic signs, owing to the fact that most of such details may be simulated by the presence of endo-appendicular fecal deposits. Of the functional signs, one—namely, evacuation—has weight in completing the diagnosis, and, more particularly, the greater or less delay with which it is accomplished as compared with cecal evacuation. No value attaches to the mode of filling, as that is not an expression of appendicular functioning. The reduced or abolished appendicular motility is a sign of great value, as the pathogenesis in most cases is connected with adhesions and exudative formations. To the various reflex colic signs no diagnostic value can be attributed, owing to their lack of specificity for the disease in question. The epigastric pain that is elicited on pressing the appendix or its pain spots is of great diagnostic value. The diseased appendix fills more rapidly with the opaque medium than does the normal appendix.

Archivos Argentinos de Pediatria, Buenos Aires

2: 707-786 (Dec.) 1931

Torticollis of the New-Born. C. Lugones and C. Carreño.—p. 707.
Celiac Disease: Intestinal Infantilism (Herter); Chronic Digestive Insufficiency in Children (Heubner). A. Rascovsky.—p. 725.
*Tubero-Infundibulohypophyseal Syndrome. J. M. Macera and F. L. Fernandez.—p. 737.
Celiac Disease. P. de Elizalde and F. E. White.—p. 746.
Pneumococcic Septicemia? in Girl Aged 23 Months: Endocarditis, Periosteal and Nonsuppurating Abarticular Localizations. P. de Elizalde and L. Smith Bunge.—p. 762.

Tubero-Infundibulohypophyseal Syndrome.—Macera and Fernandez discuss the abnormal observations in the case history of their female patient, aged 10 years, who for several months had suffered from recurrences of nocturnal fronto-occipital headaches, mental dulness, nycturia, polyuria, tumefaction of the abdomen, polyphagia, polydipsia, excitability, pains in the wrists, knees and ankles, and lately insomnia. Physical examination discloses appreciable roughness of the anterior tibial crests, hyperhidrosis of the head and hands, vasomotor disturbances of the face, ogival palate, short neck with thyroid enlargement, rapid pulse (90), abundance of painless adipose tissue over the abdomen, hips and thighs, increased micturition (3,500 Gm. in twenty-four hours) with excess of indican and traces of blood. Mentally the patient is generally apathetic but has unreasonable crises of excitability and is of slow understanding. Basal metabolism is increased 50 per cent and sugar metabolism is disturbed. The authors believe that the patient has an heredity tainted with syphilis, the more so as her mother has had four spontaneous abortions and her brother has polydactylism. From the clinical observations they are convinced that she is suffering from a tubero-infundibulohypophyseal syndrome because she presents the typical symptoms of anomalies in the metabolism of fats, water, salt and sugar, anomalies of sleep, hunger, thirst and perspiration, and disturbances of the vasomotor regulatory mechanism.

Medicina Ibera, Madrid

2: 761-796 (Dec. 19) 1931

*Cholesterol in Pregnancy, Labor, Puerperium and the New-Born. B. Pérez Velasco and J. A. Maurolagoitia y Unda.—p. 761.
Rôle of Chronic Prostatitis and Verumontanum in Changes of Sexual Function. A. de la Peña and E. de la Peña.—p. 768.
Arterial Pressure and Pulmonary Tuberculosis. A. Navarro Blasco.—p. 787.

Cholesterol in Pregnancy, Labor, Puerperium and the New-Born.—Pérez Velasco and Maurolagoitia y Unda, basing their conclusions on a study of ninety-five hospital cases, state that pregnancy produces a hypercholesteremia becoming manifest in the third month and ending with labor. Its origin is to be found in the corpus luteum, suprarenals, adipose tissue and retriculo-endothelial system. Cholesterol is in greater part synthetically produced by the maternal organism while a small percentage comes as such from the ingested foodstuffs. Hypercholesteremia in pregnancy is indispensable for the life and development of the fetus because from the beginning of embryonic life cholesterol is necessary for the building up of the fetal tissues and is later an integral material of the fetal endocrine glands. During labor, cholesteremia increases as the uterine contractions mobilize the cholesterol already in the walls of the uterus and prevent its passing into the placenta. During the puerperium the percentage of cholesterol in the maternal blood falls rapidly and comes to normal by the eighth or the tenth day, because large quantities are eliminated by the liver and these quantities are still larger in women who do not nurse. Nursing should be recommended to mothers: their milk being the great eliminator of cholesterol, nursing will prevent overloading of the liver and possible formation of biliary calculi. The amount of cholesterol in fetal blood, even when taken from the umbilical vessels, is variable and not in proportion to that found in maternal blood, and percentages in the fetus should be determined only from the blood of the umbilical vein. Cholesterol does not pass as such from maternal to fetal blood but is first reduced by placental lipases, which facilitate its passage through the placenta.

Pediatria Española, Madrid

20: 401-488 (Dec.) 1931

Relation of Syphilis and Tuberculosis with Mortality During the First Year of Life. D. A. Romeo Lozano.—p. 401.
*Infantile Typhoid. J. L. Aldecoa y Juaristi.—p. 428.

Infantile Typhoid.—Aldecoa y Juaristi draws the following conclusions based on the study of the 1930 epidemic of Portugalete: Typhoid in infants instead of being exceptional is frequent. Flies are an important factor in its propagation. Infants with unaccountable fever of from four to six days' duration should be suspected of typhoid; the classic symptoms of the adult do not exist in infants, which nearly always develop bronchitis characterized by discordance between the intensity of the bronchopulmonary signs heard at auscultation and the unimportance of functional disturbances of the respiratory tract. Typhoid aspect of the tongue and sordes invariably follow the bronchitis. The temperature curve is shorter and less typical, although still approximating the typhoid curve. Roseola, splenomegaly and dissociation of pulse with temperature are infrequent. Diarrhea and constipation are not typical, although diarrhea with yellow feces predominates. Blood cultures in the first eight days are positive in 80 per cent of the patients; agglutination is early and constant; leukopenia is present with absence of eosinophils, lymphocytosis and diminution of neutrophils. Prognosis is good. All children 2 years of age should be inoculated against typhoid, and no child suffering from typhoid should be allowed to remain at home. Carriers should be followed up and sterilized. Well fed typhoid patients stand the disease better; there is no particular advantage in an exclusive milk diet. Hydrotherapy is the basis of treatment and calcium chloride is efficacious, while so-called intestinal antisepsis has no effect. Enemas are useless and often prejudicial. Typhoid vaccines should be used early in highly toxic patients. Relapses are infrequent and independent from alimentation.

Prensa Médica Argentina, Buenos Aires

18: 879-928 (Dec. 10) 1931

Certain Forms of Chronic Bronchitis. M. R. Castex.—p. 879.
*Primary Inflammatory Tumors of Stomach. J. Diez.—p. 888.
Menisci of the Knee: Extracondylar Luxation. R. Finochietto and A. Covaro.—p. 901.
Bronchial Aspect of Mitral Diseases. C. Dónovan and A. Battro y Gazotti.—p. 905.
Lipodystrophy, Obesity, Adiposis and Lipomatosis in Relation to Endocrinology. P. M. Barlaro.—p. 913.

Primary Inflammatory Tumors of Stomach.—Diez states that the title of primary inflammatory tumor of the stomach is justified because from the clinical point of view the disease is a nonspecific, infectious granuloma occurring in the walls of the stomach and is a protracted state of spontaneous healing of gastric phlegmon, from which it has to be differentiated. The disease is especially one of later life. Laparotomy discloses a tumor in the anterior wall of the stomach in the vicinity of the greater curvature with antral or fundal localization, at times involving a complete annular segment or the lesser curvature; ordinarily it is definitely cut off at the pylorus, the duodenum remaining intact, while toward the cardia the tumor vanishes gradually. Adhesions are frequent and predominate between the anterior aspect of the stomach, the inferior aspect of the liver, the anterior abdominal wall and the pancreas. The adhesions are soft, fibrinous, unorganized, easily detachable and destined to be absorbed. The gastric serosa is intensely red or pallid and edematous, smooth and shining. The tumorous part may present a thickening of more than 6 cm. and a consistency ranging between soft and leathery. The gastrohepatic omentum and gastrocolic ligament are swollen and often retracted. The lymph nodes present the characteristics of acute and subacute adenitis. The thickening of the gastric wall occurs especially at the expense of the submucosa, may be of edematous, myxomatous or lardaceous nature, and present multiple small abscesses which may fuse, producing the relatively frequent form called suppurative abscess-forming gastritis. Microscopically the mucosa is edematous with hyperplasia of the connective tissue, incipient atrophy of the glands and in the deeper layers leukocytic infiltration. The submucosa shows edema with fibrin formation and numerous hemorrhages of all sizes and in all phases of absorption. Between these are many lymphocyte nodules surrounded by a zone of neutrophil polymorphonuclears, which indicate the tendency to small abscess formation. The muscularis shows streaks of lymphocytes and bands of young connective tissue. The subserosa offers the same lesions as the submucosa with invasion of the fat-nodules by leukocytes. The serous surface is covered with a fibrinopurulent exudate. The symptoms correspond to three stages of the disease, invasion, activity and regression. In the first stage there is sudden epigastric pain, continuous, radiating toward the left shoulder or the spine; chill and general malaise mark the beginning of the rise in temperature, which rapidly reaches 40 C. (104 F.); nausea is followed by vomiting of alimentary, acid and bilious material successively; in a few hours the general condition of the patient looks serious with marked prostration, rapid pulse and low arterial pressure; slight meteorism of the abdomen with poor respiratory mobility and contraction of the rectus abdominis muscles; the epigastrium is painful on palpation and the lower segment of the abdomen is easily depressible although sensitive. This stage lasts from two to ten days with temperature around 39 C. (102.2 F.), incoercible vomiting, intense thirst, constipation and general poor condition, after which there is a rapid regression of the symptoms and establishment of the second stage. Here the predominant symptom is the epigastric tumor, of which the lower limit only is well defined. Its consistency is soft but always less than that of a carcinoma; it is dull on percussion and reduces the inner portion of Traube's semilunar space. During this stage, which lasts from six to ten days, there are exacerbations of the pain, fever, nausea and vomiting. In the intervals there are subfebrile temperature, persistent anemia and poor general condition. Involvement of the pylorus brings on an obstruction syndrome with rapid cachexia. Blood examination reveals a secondary type of anemia. Examination of vomitus of gastric juice shows the absence of free hydrochloric acid. Roentgenograms will complete the clinical picture with the finding of small, disseminated, diffuse spots representing traces of barium insinuated between the two gastric walls. The diagnostic point is that infiltration of barium delimits the greater curvature of the stomach, which continues with the adjacent parts without the slightest deformity or retraction. Primary inflammatory tumors of the stomach evolve naturally toward resolution with restitutio ad integrum of the gastric wall in from five months to one year's time, and with disappearance of adhesions. If the pylorus is involved, the patient dies from inanition and alkalosis. Resection of the affected part of the stomach has given excellent results. If the whole stomach is involved, it is better not to resect but to wait for spontaneous resolution.

Medizinische Klinik, Berlin

27: 1885-1900 (Dec. 24) 1931

*Arteriosclerosis, Hypertension, Nephritis. R. Salus.—p. 1885.
Distress of Motherhood and Several Fundamental, Social Gynecologic Rules of Human Propagation. M. Hirsch.—p. 1889.
Operative Removal of Foreign Body from Duodenum of Nursling. E Melchoir.—p. 1891.
Parenteral Liver Therapy. A. Woldrich.—p. 1892.
Gas Gangrene Serum Anaphylaxis. H. G. Aronsohn.—p. 1893.
Combined Application of Insulin and Arsenic in Forced Feeding. A. Strasser.—p. 1894.

Arteriosclerosis, Hypertension, Nephritis.—The theories on the correlation between arteriosclerosis, hypertension and nephritis, according to Salus, have undergone considerable changes in recent years. He discusses particularly the significance of the changes in the vessels of the fundus oculi. He shows that the so-called retinitis albuminurica is a gradually developing nutritional and metabolic disturbance which first affects the stratum pigmenti and the outer layers of the retina and which is recognized by its sequelae, mainly by the reparatory inflammation and by the fatty degeneration. The disease of the layers originates in their nutritional basis; namely, in the vessels of the choroid, or in the posterior ciliary vessels, respectively. The author further states that in all patients with retinitis albuminurica there exists or has existed hypertension. He also asserts that the so-called retinitis albuminurica has no relation to a renal disorder. A connection exists only so far as the two disturbances often concur. They are coordinated diseases of different vascular provinces. If in the course of an apparently benign hypertension there develops a retinitis the primary disorder can no more be considered as benign than as if severe renal or cerebral disorders existed. The now existing hypertension is the malignant form. Thus, retinitis has also a prognostic significance. However, in predicting life expectancy it has to be considered whether vital organs such as kidney or brain are involved. The usually quoted two year limit applies of course only to cases with simultaneously existing severe renal disease, and even for these not always. In toxic glomerular nephritis, pregnancy, scarlet fever and similar conditions the prognostic significance of retinitis is of course different. This form of retinitis is curable because the infection, which is the cause of the production of toxin, is curable, or the pregnancy terminates or can be interrupted. In regard to the terminology the author states that the usual designation of "retinitis albuminurica" or "nephritica" should be discontinued, but he admits that it is difficult to find a suitable term. He suggests the terms scarlet fever retinitis, pregnancy retinitis and retinitis in hypertension, the latter term indicating the presence of malignant hypertension, regardless of whether or not renal changes exist.

Münchener medizinische Wochenschrift, Munich

78: 2187-2210 (Dec. 25) 1931

*Ray Therapy of Exophthalmic Goiter. J. Prüfer.—p. 2187.
Discussion on Irradiation of Exophthalmic Goiter. Halberstädter.—p. 2189.
Serodiagnosis of Active Tuberculosis by Means of Examination of Colloidal Buffer Action. K. Klinke and H. Hensel.—p. 2190.
*Clinically Diagnosed Cases of Aneurysms of Cerebral Vessels. G. Lemmel.—p. 2193.
Modification of Anemic Funicular Myelitis by Liver Therapy. H. Nehls.—p. 2194.

Ray Therapy of Exophthalmic Goiter.—Prüfer gives the clinical histories of six patients who died in a coma following roentgen irradiation of an exophthalmic goiter. But although he assumes a relationship between the irradiation and the fatal comas, he also reports that in six other cases of exophthalmic goiter the results of roentgen therapy were favorable and that five other patients, who had not been subjected to irradiation, also died in a comatose condition. He does not wish to assert that in the six reported cases the irradiation was always the cause of the coma, but he thinks that it led to the manifestation or only exacerbated an already existing coma. From his observations the author concludes that greater discrimination is necessary in the selection of patients for roentgen therapy, and that patients with beginning coma should be excluded from irradiation. However, he does not wish to discredit roentgen treatment of exophthalmic goiter but only wishes to call attention to possible injurious effects.

Clinically Diagnosed Cases of Aneurysms of Cerebral Vessels.—Lemmel relates the clinical observations on three patients with ruptured aneurysm of an artery of the base of the brain. In all of them the condition was diagnosed before death and necropsy confirmed the diagnosis. The clinical manifestations were essentially the same in the three cases; namely, severe apoplectiform attacks with the signs of intrameningeal hemorrhage (meningitic syndrome and hemorrhagic cerebrospinal fluid), and with or without abolition of function. The attacks, which generally developed in healthy and comparatively young persons, often were successive. The author states that following the rupture the diagnosis is generally not difficult, provided the possibility of an aneurysm is thought of. By roentgenologic visualization of the calcified aneurysmal wall the diagnosis may even be possible before the rupture.

Zeitschrift für Klinische Medizin, Berlin

119: 1-292 (Dec. 18) 1931

Genuine and Relative Alkaptonuria. G. Katsch.—p. 1.
Chemical and Biologic Behavior of Synthetic Homogentisic Acid. G. Katsch and R. Hürthle.—p. 10.
Behavior of Homogentisic Acid in Serum of Normal Persons and Persons with Alkaptonuria. R. Hürthle.—p. 14.
Cause of Relative Alkaptonuria. R. Hürthle.—p. 19.
Hypothyroidal and Hyperthyroidal Obesity. A. Lublin.—p. 29.
*Pulmonary Edema Following Epinephrine Intoxication. P. Wichels and H. Lauber.—p. 42.
Technic of Partial Bath with Slowly Increasing Temperatures. H. Scholderer.—p. 50.
Influence of Partial Hot Bath on Heart Action. H. Lauber and H. Scholderer.—p. 54.
Sinus Thromboses Following Administration of Quinidine. H. Scholderer. —p. 64.
Measuring Diameter of Aorta During Certain Phase of Pulsation. H. Lauber, E. L. Przywara and G. Velde.—p. 67.
Bacterial Flora of Stomach of Patient with Phthisis. W. Schlopsnies. —p. 77.
*Diabetes Mellitus as Secondary Disease. O. Ferger.—p. 81.
Clinical Aspects of Thuja Poisoning. F. Brauch.—p. 86.
Significance of Occurrence of Megaloblasts in Circulating Blood. R. Hürthle.—p. 92.
Chyluria. H. W. Burchard.—p. 96.
Mechanism of Pale Hypertension: Vasoconstrictor Substances in Blood During Pale Hypertension. H. Bohn.—p. 100.
Idem: Quantitative Chemical Method for Determination of Choline in Blood. H. Bohn and W. Schlapp.—p. 140.
Idem: Choline Content of Blood in Red and Pale Hypertension. H. Bohn and W. Schlapp.—p. 150.
*Diabetes Mellitus and Vascular System. F. Leutenegger.—p. 164.
Circulatory Conditions in Venous Regions of Varicose Degeneration. M. Ratschow.—p. 177.
Circulatory Dynamics of Heart Block. T. Menne and S. Lauter.—p. 196.
Gallop Rhythm. L. J. Fogelson.—p. 205.
Origin of Profuse Pulmonary Hemorrhages in Cardiac Lung. E. Proft. —p. 218.
Colloid Osmotic Pressure in Biologic Fluids: Exudates and Transudates. P. Meyer and I. Friedheim.—p. 236.
Sedimentation Speed of Erythrocytes and Case of Acute Calciprivic Osteopathy. F. Reiche.—p. 248.
Acute Atrophy of Liver Following Cholangeitis-Cholecystitis. P Kaczander.—p. 264.
*Diagnosis of Chronic Alcoholism. R. Matossi.—p. 268.
"Autochthonous Water Formation" and "Negative Perspiration Insensibilis": Remarks on Theory and Practice of Indirect Determination of Extrarenal Elimination of Water. A. da Silva-Mello.—p. 279.

Pulmonary Edema Following Epinephrine Intoxication.—Wichels and Lauber report a case of late pulmonary edema after epinephrine intoxication, in a woman, aged 28. Experiments on animals revealed that the pathogenesis of pulmonary edema is extremely complicated and manifold, but they gave no pointers for a causal therapy of late pulmonary edema following administration of epinephrine.

Diabetes Mellitus as Secondary Disease.—In studies on 160 diabetic patients, Ferger found in 10 per cent of the cases a relation to a disorder of the gallbladder. In an additional 9.4 per cent of the cases the anamnesis revealed a previous disorder of the gallbladder or of the liver, but there was no absolute proof of a connection between this disease and the existing diabetes. The author considers as the cause of the relationship between these disorders the proximity of the organs and the plentiful supply of lymph vessels, for these factors make it possible that inflammatory processes spread from one organ to the other. For the same reason it is understandable that a diabetes may develop as secondary disease also in duodenal ulcer. In the last part of the article the clinical history of a patient with disease of the gallbladder is related. A dextrose tolerance test revealed a pathologic blood sugar curve, and the author considers this disturbance in the carbohydrate metabolism as the beginning of a secondary diabetes.

Diabetes Mellitus and Vascular System. — Leutenegger first reviews the literature on vascular changes during diabetes and shows that some authors maintain that there is a special form of arteritis, which is the direct result of diabetes. He then gives a summary report of 1,000 cases of diabetes which were studied for the presence of vascular changes. His clinical observations convinced him that there is no special form of arteritis that is a sequela of diabetes, for if diabetes did cause such a vascular complication, it should also be found in diabetic patients less than 40 years of age, which, however, is not the case. Likewise the statement of the investigators who maintained that vascular changes are present in 90 per cent of diabetic patients in whom the metabolic disorder has persisted for five years or more could not be corroborated by the observations in 1,000 cases, for in 65 of 133 patients in whom the diabetes had persisted for over five years vascular changes were entirely absent. The author found that arterial changes were present primarily in diabetic patients who were in the sixth or seventh decade of life, that is, at an age during which such vascular changes appear also in patients without metabolic disorders.

Diagnosis of Chronic Alcoholism. — In tests on thirty persons, Matossi demonstrates the different behavior of alcohol in the blood of persons who abstain from alcohol or who drink it rarely and in small quantities, to that in persons addicted to alcohol. In persons who are not habitual alcohol consumers, the increase as well as the decomposition of the alcohol in the blood is more rapid than in addicts. Whereas in those who are not habitual drinkers the alcohol has usually completely disappeared within five hours, in persons with chronic addiction to alcohol it is present for nine hours or more. This observation is valuable in the diagnosis of chronic alcoholism, and the author cites one case which clearly illustrates the reliability of this test. The alcohol content of the cerebrospinal fluid does not go parallel with that of the blood but persists much longer. This indicates that in the blood the alcohol is oxidized more rapidly than in the cerebrospinal fluid.

Magyar Orvosi Archivum, Budapest

32: 421-503, 1931

Why do Influenza Epidemics Appear Every Second Year? B. Fenyvessy and L. Kun.—p. 421.
Crystallization Causing Appearance of System of Fibers in Connective Tissue. T. Huzella.—p. 432.
Influence of Organs with Internal Secretion and Feeding on Blood Calcium. A. Beznák.—p. 438.
Influence of Lecithin on Stability of Serum Proteins. I. Went and F. Faragó.—p. 451.
*Importance of Argentaffine Cells. G. Erös.—p. 459.
Microscopic Differences Between Aortic Valves Affected by Syphilis and by Endocarditis. J. Benedict.—p. 467.
Effect of Digitalis and Certain Other Cardiac Drugs on Cultures of Heart Tissue. E. Varga.—p. 488.
Tissue Culture of Rabbit Skin. S. Blazsó.—p. 429.

Importance of Argentaffine Cells.—Erös investigated the so-called yellow argentaffine cells of the gastro-intestinal tract and their relation to disturbance in the function of the glands of internal secretion. The experimental animals were dogs, cats and rabbits. In disturbances in which a removal of the thyroid or suprarenals or the administration of insulin had led to a decrease in the blood sugar, he noted that argentaffine cells at first (immediate action) decreased in number but later (delayed action) increased in number. When administration of epinephrine, the removal of the pancreas, chilling or hunger caused a rise in blood sugar, the argentaffine cells increased at first and later decreased in number. The author believes there is a close relationship between the number of argentaffine cells in the intestinal canal and the endocrine gland secretory function; the number of these cells can increase or decrease in accordance with the increase or decrease in the activity of the endocrine system; and these results can be reproduced experimentally. Whereas formerly no digestive or any other function was attributed to these cells, the author now finds that they are similar to the silver reducing cells in various glands of internal secretion, such as the suprarenals, hypophysis and pancreas. The silver-reducing cells present in the endocrine glands compare with those in the gastro-intestinal system, not only in the property of reducing silver but also in the property of containing chromaffin and lipoid.

Polska Gazeta Lekarska, Lemberg

10: 981-1004 (Dec. 20) 1931

Introductory Remarks at Opening of Cancer Institute at Lwów. W. Ziembicki.—p. 981.
*Actinic Ray Therapy of Malignant Neoplasms of Tongue and Jaw. A. Cieszyński and E. Meisels.—p. 983.
Case of Cancer Observed from Time of Appearance. S. Meyerson.—p. 987.
Statistical Chart of Cancer and Other Malignant Growths in Małopolska During 1930. K. Węckowski.—p. 988.
Increase in Frequency of Pulmonary Cancer. A. Syrek.—p. 995.
Postmortem Aspect of Increased Frequency of Pulmonary Cancer. W. Nowicki.—p. 997.

Actinic Ray Therapy of Malignant Neoplasms of Tongue and Jaw.—Cieszyński and Meisels are of the opinion that roentgen treatment of tongue and jaw cancer is almost useless or, at best, its action results in amelioration of the subjective symptoms at the price of injury to surrounding structures. Moreover, direct irradiation by aid of localizers is uncomfortable to the patient, while it is doubtful whether it is of any more benefit than irradiation through the cheeks and neck. The failure of roentgen rays, they reason, is due to reduction in *radioconductivity of tumor tissue, and serious injury to surrounding* tissue will result before the neoplasm will suffer at all. Radium is their agent of choice, applied to the surface or by radiopuncture. In surface application the holders of Stents or the authors are suggested to hold a 0.5 mm. platinum tube containing radium salts in place. The doses are usually high. Radiopuncture is far superior. Platinum-iridium needles from 15 to 20 mm. long are introduced, under local anesthesia, into tumor tissue in the proportion of 1 mg. of radium to each cubic centimeter of tumor tissue. This treatment is most advisable in cancers of the frontal half of the tongue and mucous membrane of the cheeks; in the posterior part the combined treatment (surface and radiopuncture) gives better results. Surgical treatment should be resorted to in early cases that do not require extensive mutilation, also cases refractory to actinic therapy in which the necrotic tissue annihilates the radioconductivity. The primary lesions respond to this treatment if handled correctly. The metastases, however, usually early and abundant in cancer about the mouth, present a different problem; surgery is the only method of treatment.

Acta Medica Scandinavica, Stockholm

41: 1-131 (Feb. 5) 1931. Supplement

*Late Symptoms After Gastro-Enterostomy and Resection of Stomach (Billroth II) for Gastric and Duodenal Ulcer. H. Lublin.—p. 1.

Late Symptoms After Operation for Gastric and Duodenal Ulcer.—Late symptoms arising after operation for gastric and duodenal ulcer are divided by Lublin into four groups: (1) postoperative ulcers; (2) hematemesis, melena and symptoms of gastric character without any definitely demonstrable ulcer; (3) symptoms of intestinal character, and (4) postoperative anemias not occasioned by bleeding. Males seem to be more predisposed to postoperative ulcers than females, whereas females seem more liable to get other postoperative complaints. The postoperative gastric complaints not occasioned by ulcer are due to different factors varying from case to case. Gastritis is of great importance. Adhesions and disturbances in the mobility play a less important part. There is no proportion between the subjective symptoms and their causes. This is due to a nervous condition occasioned by the digestive disturbances caused by the operation and by the operative intervention itself. In cases of definite ulcer and cases presenting a possible ulcer, symptoms arise a relatively long time after operation, whereas in cases without demonstrable ulcer they arise shortly after operation. More than half the patients on whom gastro-enterostomy is performed show stools looser than normal, with increase of mucus and diminished digestion of connective tissue after a Schmidt-Strasburger test meal. Increased fatty contents in the feces are found in 50 per cent of the cases. In only a few instances has increased iodophilia been found. Chemical examination of diarrheal feces shows marked digestive disturbances, while cases with a tendency to constipation show much milder disturbances or none at all. In the case of intestinal disturbances occurring prior to the operation, the chance of such disturbances occurring at a later date is augmented. The most important condition for digestion to take place to its normal extent is to maintain the physiologic way of emptying the stomach. The possibility of sufficient admixture of gastric chyme and duodenal juice is thereby assured and the reflexes occasioning the secretion maintained. A tendency to pronounced nonposthemorrhagic anemia is present in more than two thirds of the cases. Exclusion of the pylorus, whether done in connection with resection or not, appears particularly to predispose to anemia. The cause of nonposthemorrhagic anemia occurring after resection and gastro-enterostomy is unknown. It is probably to be found in functional disturbances of the digestive organs and associated factors brought about by the operation. After gastro-enterostomy the gastric acidity is often reduced; yet in some cases it is unaltered or even raised. Postoperative acidity varies not only from case to case but also within a comparatively short time in one and the same case.

Norsk Magasin for Lægevidenskapen, Oslo

92: 1157-1268 (Nov.) 1931

*Gerson-Hermannsdorfer-Sauerbruch Diet in Tuberculosis of Skin: Results. E. Bruusgaard and E. Hval.—p. 1157.
**Examinations of Blood Sugar at Tuberculosis Sanatorium.* E. Svaar.—p. 1176.
*Typhoid Carriers in Western Norway: III. T. M. Vogelsang and M. Haaland.—p. 1183.
*Epidemic Croupous Pneumonia. A. Strøm.—p. 1208.
Two Cases of Erysipeloid. A. Lindaas.—p. 1217.

Gerson-Hermannsdorfer-Sauerbruch Diet in Tuberculosis of Skin: Results.—Bruusgaard and Hval used this diet, somewhat modified to suit Norwegian conditions, during the last two years in seventy-five cases of skin tuberculosis, of which sixty-two were lupus vulgaris, for an average time of seven or eight months. The immediate results have been good and highly encouraging. The diet, they say, has a generally stimulating effect on the natural defensive powers of the organism but does not act through formation of specific antituberculous substances in the skin. The tissue-absorbing action of the diet is notable. Fourteen cases are given in detail.

Examinations of Blood Sugar at Tuberculosis Sanatorium.—From his examinations of the fasting blood sugar in eighty-four patients with pulmonary tuberculosis, on admission for treatment and on discharge, Svaar concludes that determination of the blood sugar is of no value in prognosis.

Typhoid Carriers in Western Norway.—Vogelsang and Haaland report fifteen new typhoid carriers, together with recent cases of infection from previously known carriers. One typhoid carrier reported earlier has become abacillary without operation. In two cases in which cholecystectomy was contraindicated, cholecystotomy was done, with positive results in the one. Of the twenty-five patients with cholecystectomy nineteen, or 76 per cent, were cured of the infection, two died, and four gave negative results. In the cases showing persistent infection, the interval between infection and operative treatment was from seventeen to forty-five years.

Epidemic Croupous Pneumonia.—The epidemic described by Strøm occurred in an orphanage and was due to a type I pneumococcus. This pneumococcus was found not only in the sputum but in cultures from the nose and throat, during the disease and up to seventy-three days after the crisis. During the epidemic 33.3 per cent of the well contacts were carriers, and two and a half months later 16.9 per cent were. The strains from patients were more virulent to mice than were those from carriers.

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STRICTURE OF THE UTERINE CERVIX *

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In presenting a summarized sketch of my subject, the pathology and clinical features of obstructions and strictures of the uterine cervix, it is my hope that I may suggest some new points for consideration. One encounters cases of cervical stricture repeatedly every month, and I am increasingly impressed that these lesions are of outstanding importance—of such importance that they merit the attention not only of the gynecologist but of the internist and the general practitioner as well.

ETIOLOGY

Cervical strictures in younger women occur most frequently in those who give a history of genital infection or instrumentation. Gonorrheal infection, particularly in those cases in which there has been considerable treatment of the cervix, is perhaps the most common of all causes of stricture. The use of radium within the uterus rivals gonorrheal infection. The cautery knife, so popular in modern times in the treatment of endocervicitis, may be useful in overcoming strictures, but it is also a potent factor in producing them. This is particularly true if repeated cauterizations are performed or if the cautery knife carries too much heat; also, if it has been necessary to cauterize high within the canal. Even the curet brings its toll of adhesions and cicatrices in the cervical canal; surely no one would curet the urethra without fear of a stricture, yet it is assumed that the cervix may be curetted with impunity although its apposed folds of mucosa are likewise subject to adhesion. A history of instrumental abortion is obtained from some patients presenting stricture who give no other history of injury or infection which might account for cervical obstruction. In cases of this nature there has usually been repeated instrumentation; i. e., an instrumental abortion with subsequent curettage, or instrumental abortion complicated by leukorrhea, with more or less treatment for relief of the latter.

Operations on the cervix contribute their share to the total number of cervical strictures. Pocketing of the canal above the obstruction is a rather common sequel. Even in cases in which the canal is left sufficiently roomy to permit unhampered passage of a dilator, there is a surprisingly high percentage of pockets immediately above the site of repair. As a rule, these are easily demonstrable by palpation with a dilator; sometimes they are evident only on bisection of the cervix.

"Senile vaginitis" is a well known condition. I wonder how many physicians are aware that this trouble is usually ascribable to senile stricture of the cervical canal. With cessation of the menstrual function there is atrophy, with more or less shrinkage of the lumen of the canal. Lesser lesions of varied etiology, which caused no annoyance in earlier years, may now suffice to make complete obstruction. There is first a retention of mucoid secretion, then contamination of the retained material, and, finally, a seeping through of the purulent accumulation when pressure sufficient to overcome the obstruction has developed within the uterine cavity. The incidence of pyometra in these cases will be noted later.

Mention of the etiology of cervical stricture would be incomplete without emphasis of the fact that many cases of stricture are encountered in women of childbearing age without history of infection or instrumentation. Among these, a considerable proportion are found in patients with fibroid tumors. On September 1, my first day of work this autumn, I curetted an unmarried virgin patient, aged 49, preliminary to radium treatment of small bleeding fibroids. After almost ten minutes expended in unsuccessful efforts to dilate, we resorted to anterior bisection of the cervix, in order to gain entrance into the uterus. An impenetrable, firm stricture, 1 cm. within the canal, a lake-like pocket above, and a second firm stricture at the internal os were all clearly exposed to view.

PATHOLOGY AND DIAGNOSIS

Perhaps cervical strictures have been overlooked all these years because the attention has been fixed on getting at the contents of the uterus. Impatience to discover what is beyond has caused neglect of obstructions in the canal. Even though a tight cervix has been encountered, the physician's thoughts have been concentrated on the pathologic changes above, blockage of the passage being passed by as insignificant. I can even now recall numerous occasions during bygone years when cervices were found which were passable only to a flexible probe or which required partial bisection anteriorly in order to permit entrance of the finest dilator.

Now that my associates and I have taught ourselves to look for obstructions, we explore the canal with extreme gentleness. Specially made small-caliber dilators are of great help. Recourse to anesthesia is sometimes advisable in the study of cervical obstruction in patients with an apparently impassable canal in whom there is intractable leukorrhea, suggestive of obstructed drainage. Also, in patients in whom hysterectomy is inevitable, an attempt is made to preserve the cervical canal uninvaded and intact, that it may be studied in unaltered condition following operative removal.

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* Read before the Wisconsin State Medical Society, Sept. 10, 1931; the Michigan State Medical Society, Sept. 23, 1931, and the meeting of the Central Association of Obstetricians and Gynecologists with the Chicago Gynecological Society, Oct. 30, 1931.

It should be noted that obstruction is not always demonstrable with certainty on routine examination in the office; the sound may catch in the cervical folds or the canal may be impassable because of inaccessibility of the uterus or sensitiveness of the patient. In such cases the pathologic changes may be sufficient to warrant examination under anesthesia, and in a considerable number of instances it will be found that the obstruction was apparent rather than real.

On the other hand, true strictures are found sometimes when least expected. Routine study of the uterus after complete hysterectomy reveals more than an occasional incidence of clearly demonstrable cervical stricture. Among half a dozen uteri, saved for the artist during the three weeks of July devoted to the preparation of this paper, bisection in the frontal plane, preliminary to the making of sketches of the normal uterine canal, revealed one uterus with an incompletely occluding firm scar, above which was a valve-like corkscrew stricture; there was retained tarry fluid, but no ballooning, above the stricture. During the same three weeks, another patient presented a gristly, firm cervical occlusion slightly below the internal os; above this obstruction were seen an adenocarcinoma and much retained débris.

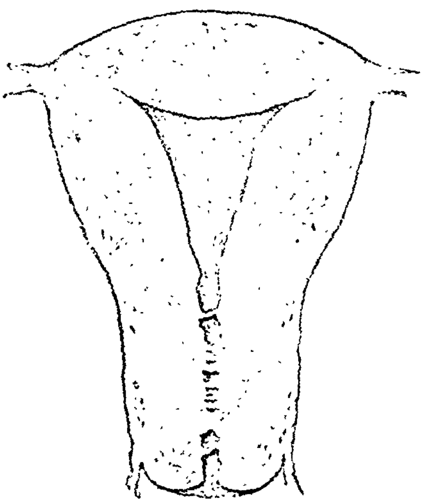
Fig. 1.—Schematic illustration, showing uterus bisected in the frontal plane, and cervical strictures incident to gonorrheal infection.

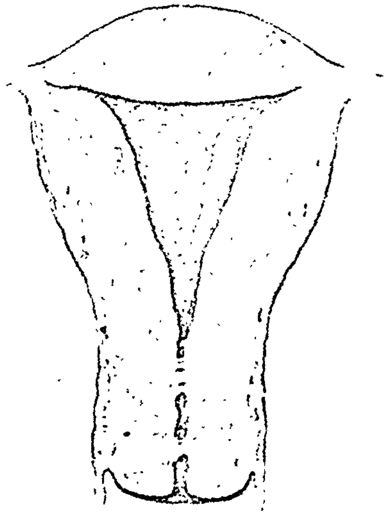
Fig. 2.—Schematic illustration, showing uterus bisected in the frontal plane, and strictures which developed subsequent to radium treatment.

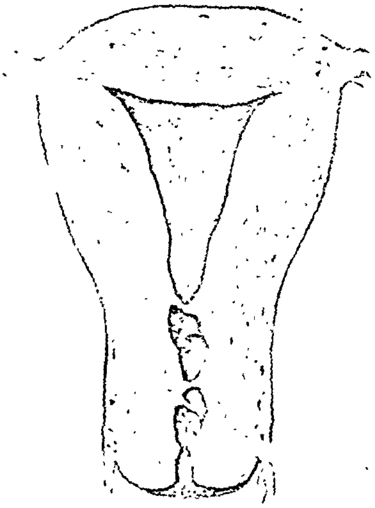
Fig. 3.—Semidiagrammatic sketch of posterior half of a uterus bisected in the frontal plane after hysterectomy for relief of profuse menstruation, persistent tarry discharge and dysmenorrhea. Multiple strictures are seen which are complicated by dilatation and pocketing of the cervical canal.

It was only recently that I came to a realization of the great number of interesting observations which may be made after bisection of the uterus in the frontal plane. An astounding amount of information is thus obtainable relative to the size and configuration of the canal of the cervix and the lower uterine segment—partial obstructions, strictures, dilatations, pockets, polyps, variations in size, in form and in content; all these are at once evident, provided only that the canal is left uninvaded and undisturbed before operation and that the removed uterus is studied after bisection in the frontal plane, care being taken to obtain two exactly symmetrical anterior and posterior halves.

The failure of pathologists to note a frequent incidence of cervical strictures is readily explicable. There is not only an ever present human tendency to overlook the new, as duodenal ulcer and endometriosis were overlooked until recent years, but there is also another important factor: the uterus is usually dilated and often curetted preliminary to hysterectomy, and thus all evidence of strictural lesions is destroyed, except perhaps pathologic dilatation of the canal, and the latter is readily overlooked. The amount of disturbance of the morbid anatomic structures which occurs incident to manipulations in the operating room is often considerable; James E. Davis of Detroit informs me that in a series of 1,200 uteri sent to his laboratory, 20 per cent were so mutilated by intrauterine instrumentation that they had to be discarded in making a statistical study of the details of uterine pathology. It is self evident that strictures will not be found in uteri removed after diagnostic dilation and curettage.

To digress for a moment: Study of the frontal plane of the multiparous uterus, after removal, reveals a frequent incidence of increased size of the cervical canal; funnel-shaped widening of the canal, with the base of the funnel at the external os, is apparently characteristic of a large percentage of these uteri. Just as a mother broadens out in the hips after bearing many children, her cervical canal also widens; this at least appears true in those patients who have more or less laceration of the cervix with extension into the base of the broad ligament. The funnel-shaped contour of the canal of the multiparous uterus may account for the considerable incidence of pocketings of the cervix which is encountered in patients after neatly done, but too low, cervical repair; an external os which is restored to normal size often passes upward into a balloon-shaped, permanently widened canal, unless excision of the diseased cervix has been carried to a relatively high point.

To return to a consideration of the details of cervical strictures: Ballooning of the cervical canal above the stricture may develop to a high degree provided there is obstruction sufficient to produce notable accumulation of mucus or retention of tarry menstrual blood. The pathologic changes produced by the retained material may be very extensive. In addition to a lake-like widening of the cervical canal, the capacity of the uterine cavity may be greatly increased; pyometra is commonly, and probably almost invariably, ascribable to cervical obstruction. Among other complications, we have encountered some cases of endometriosis in patients with anteriorly placed uteri, in whom the etiologic factor of this disease was evidently a menstrual backflow through the tubes, incident to cervical occlusion. (I have never seen pelvic endometriosis in a patient with a well placed uterus, except in these cases of marked cervical obstruction.)

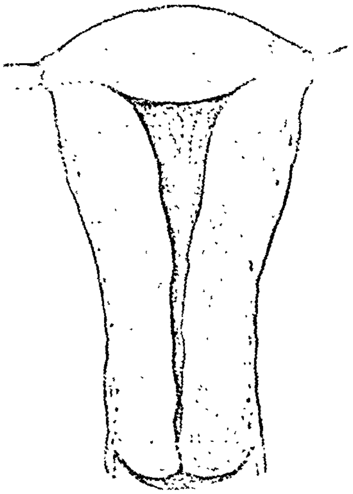

Fig. 4.—Schematic illustration, showing atrophic senile uterus, bisected in the frontal plane. Typical senile strictures of the lower cervical canal are present.

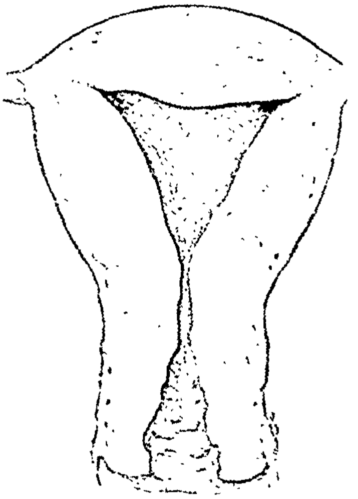

Fig. 5.—Multiparous uterus, bisected in the frontal plane after hysterectomy for persistent bleeding. Note the typical funnel-shaped widening of the cervical canal; this is notably frequent in association with deep lacerations of the cervix. Repair of the cervix should be sufficiently high to avoid postoperative pocketing of the canal.

To go a step further, I strongly suspect that nature's attempts to overcome strictural obstructions of the cervix may sometimes be a factor in the etiology of endocervical cancer; constant pressure and traumatism at the stricture site misplace cells into the deeper tissues, where they are free to grow uncontrolled. That cancer might thus develop is easily conceivable.

Inadequate drainage appears to be a chief reason for persistence of chronic leukorrhea of cervical origin. Recovery after treatment with the cautery knife is usually ascribable to the overcoming of gross obstruction in the cervical canal or to the establishment of drainage from microscopic foci of infection lodged in the deeper glands of the endocervix. With thorough drainage once established, nature does the rest. Looking backward, one must agree with the gynecologists of thirty years ago, who claimed that curetted patients were frequently cured of chronic leukorrhea; but it was the establishment of drainage incident to dilation of the obstructed cervical canal, not the scraping out of the uterus, which effected a cure.

It is a common experience in my practice to see patients well past the menopause who complain of the sudden appearance of profuse leukorrheal discharge. Obstruction of the cervix is commonly encountered in these patients. Just as it is now recognized that hemorrhage after the menopause is almost always diagnostic of uterine cancer, it may with equal assurance be stated that the otherwise inexplicable sudden appearance of profuse purulent vaginal discharge in a woman beyond the menopause is pathognomonic evidence of cervical stricture. Sometimes the obstruction has been largely overcome incident to accumulated pressure having broken through the barrier; even so, residual narrowing of the cervical canal with pocketing above is usually still evident. The relationship between "senile vaginitis" and cervical stricture has already been discussed.

It is also a common experience to have patients complain of persistent passage of tarry menstrual fluid. Although many such cases are attributable to disturbed menstrual function incident to disease of the ovaries, an occluded cervical canal is likewise a frequent cause of this disorder.

Symptoms referable to cervical obstruction are not limited to leukorrhea, the passage of tarry blood, dysmenorrhea, or occasional pyometra. Backpressure of retained secretions and menstrual blood is a hitherto unemphasized factor in the etiology of more widespread pathologic changes in the pelvis—a not rare cause of otherwise inexplicable low grade pelvic peritonitis, chronic tubal and ovarian disease, and endometriosis. Within the last several months, my associates and I have operated on two such patients, in whom the underlying cause of diffuse chronic pelvic peritonitis was apparently a backpressure into the upper pelvic zone incident to a badly diseased obstructed cervix.

TREATMENT

Every patient who has been treated with radium applied in chain tandem throughout the uterine canal should be kept under observation, for the purpose of preventing subsequent cervical stricture. There may be no symptoms despite the presence of a tightly constricted canal, but many patients return, a year or more after irradiation, annoyed by chronic leukorrhea or suffering from pelvic discomfort incident to retained secretion.

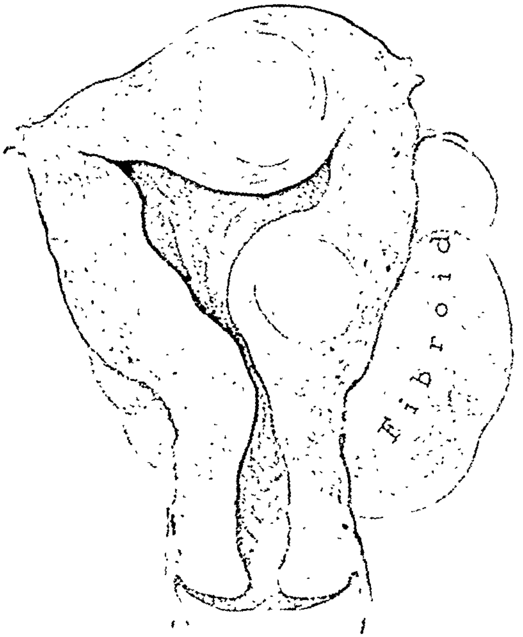

Fig. 6.—Multiparous uterus, bisected in the frontal plane after hysterectomy for bleeding fibroids. Distortion of the canal and "multiparous funnel-shaped widening" of the cervical canal are seen.

Dilation of the obstructed cervix, performed at the office, tends to be unsatisfactory except in cases in which there is simple occlusion at the external os, or a single thin valve-like barrier, or soft cobweb granulations in the higher canal. Even though dilation of a firm stricture is accomplished, recurrence of the obstruction is frequent. Not only is this true, but the traumatism inevitably associated with overcoming an extensive fibrous stricture may result in the eventual production of a still firmer fibrosis, which resists all attempts to dilate without anesthesia.

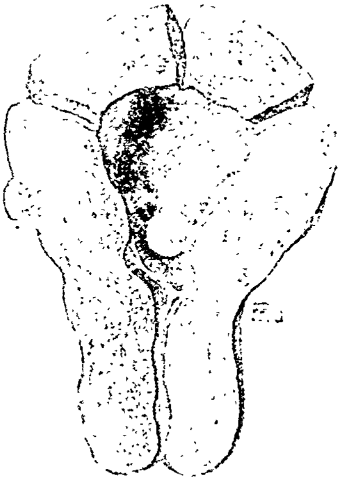

Fig. 7.—Hysterectomy for profuse leukorrhea and uterine bleeding. Longitudinal stricture and multiple "heart-valve" strictures of the cervix with dilatation above are seen. The uterus was opened by anterior incision.

Many older women, well past the menopause, have cervical canals which are impassable to dilators, but no notable discomfort is suffered. Such uteri need not be disturbed unless there is a suspicion of pyometra or malignancy. In the event that surgical intervention appears advisable, amputation of the cervix in women past the menopause does not yield ideal results; the cervix should often be bisected anteriorly and vaginal hysterectomy resorted to in cases in which this procedure reveals extensive pathologic changes.

In younger women, undilatable strictures and their associated pathologic changes are usually amenable to cure by a modified Schroeder operation or other procedure adapted to thorough removal of the diseased cervical tissues. Such operation is usually preferable to treatment with the cautery knife. It is essential that the canal be left widely patulous.

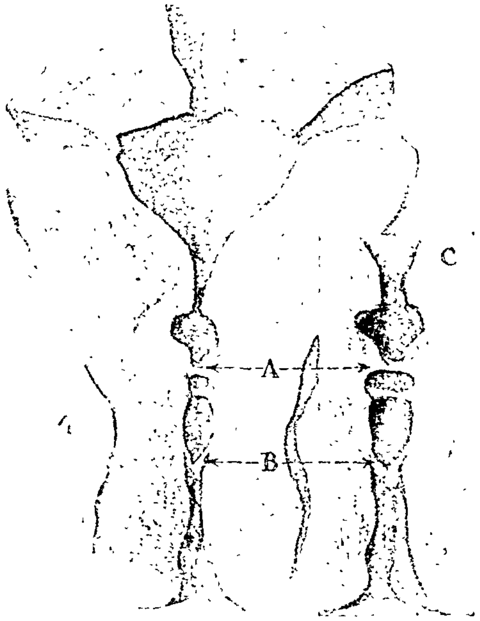

Fig. 8.—Multiple cervical strictures in a patient, aged 54, in whom the menopause occurred at 48. Purulent leukorrhea was noted for one month prior to operation; there was no history of previous infection or instrumentation. The uterus was opened after hysterectomy by anterior incision (not bisected in the frontal plane). *A*, cicatricial bands with retention of purulent material above; *B*, complete stricture impassable to dilator; *C*, cervix spread open.

CONCLUSIONS

1. Stricture of the uterine cervix is of sufficiently frequent occurrence to warrant the interest of every one concerned with pelvic diseases in women.

2. Important symptoms are persistent leukorrhea, dysmenorrhea, the passage of tarry menstrual blood, and pelvic discomfort of varied intensity. Any one or all of these symptoms may be wanting.

3. The pathologic changes include every conceivable variety of strictural obstruction. Dilatation and pocketing of the canal are frequent. Retention of mucoid secretion or tarry blood sometimes produces serious lesions of the upper genital tract and pelvic peritoneum.

4. Strictures may usually be diagnosed by intracervical palpation with Hegar dilators of small caliber. They are often easily demonstrable and readily overcome. At other times the diagnosis is difficult, anesthesia being required not only to reveal whether a stricture is apparent or real but also, when a stricture is present, to determine its nature and the extent of the complicating pathologic changes.

5. The treatment of stricture of the cervix follows well recognized surgical principles. Dilation may suffice; amputation of the cervix is often necessary, and vaginal hysterectomy is occasionally indicated in selected cases.

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THE SYMPTOMATOLOGY OF FRONTAL AND TEMPOROSPHENOIDAL TUMORS *

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Because of the paucity of definitely known physiologic centers in the frontal lobes, the diagnosis of tumor formation in these areas has long been difficult. Neurologists have been forced to look for main guidance to the results of pressure exerted backward on either the pyramidal tracts or their cortical origins, and to the presence of change in the mental state as a confirmatory factor. Alterations in mental and emotional condition appear more frequently here than from expanding lesions elsewhere. First is seen a lessening in power of attention; irrelevant replies are made. There develops a trivial and meaningless jocosity. Short periods of excitement occur, with foolish, inept and causeless laughter. There is a tendency to take offense easily, with, on the other hand, effusive apologies over trifles. Frontal epilepsy is frequent, characterized by petit mal and sudden attacks of mental confusion. With increase in pressure, hebetude replaces these earlier manifestations; the patient lapses at times into stupor and often can be roused only with difficulty. Frontal stupor is hebephrenic and less profound than is the morbid sleep induced by hypothalamic lesions; patients of the latter order can be roused to crystal-clear consciousness, whereas frontal stupors, by stimulation, are changed to a merely turbid or muddied awareness. There is frequent and characteristic yawning, and urinary incontinence appears earlier than would be warranted by the degree of drowsiness. In this connection, I observed a soldier who, from a through and through gunshot wound of the right frontal lobe, had persistent urinary incontinence as his sole neurologic symptom. Headache is less prominent than is usual; possibly the lowering of mental level makes complaint less articulate. There may come forced grasping or tonic perseveration of muscular action in the contralateral hand, from involvement of the anterior part of the corpus callosum and the frontopontocerebellar fibers. In my experience, the only station characteristic of disease in this area is titubation on the heels with a tendency to retropulsion. Compression backward often produces mild contralateral pyramidal tract signs, but one must remember that a meningioma placed anteriorly may press across the midline of the brain, giving rise to a similar motor reduction and to reflex changes on the same side as the main growth.

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* From the Department of Neurology, Cornell University Medical College.

* Read before the International Neurological Congress, Bern, Switzerland, Aug. 31, 1931.

Individuals with appropriate cerebral dominance may suffer difficulty in speech emission with no loss of internal language; deterioration of function in the lowest part of the precentral gyrus may so impoverish the finest movements of the lips and tongue as to interfere greatly with speech. It is unwise, however, to assume that language representation must always be contralateral to the prevailing handedness. It has been shown that the apparent anomaly of the so-called crossed aphasias comes from such representation following right handed and left handed stocks independently of individual handedness; i. e., a right handed person in a stock dominantly left handed has the speech area more developed on the right than on the left side of the brain. It is therefore diagnostically inadequate to regard the handedness of the patient alone; an effort should be made to determine the prevailing handedness of his stock.[1] However, these criteria—personality change, stupid drowsiness, bladder and often rectal incontinence, pyramidal implication, and difficulty in the spoken word—may all be lacking or equivocal. One syndrome when present is diagnostically decisive: a speedy reduction in ipsolateral acuity of vision due to ipsolateral compression neuritis of the optic nerve lying below the frontal lobe, coincident with papilledema and normal vision in the opposite eye. From compression of the olfactory tract there is usually also under these circumstances anosmia on the same side. One may assert that if there is no doubt that a given patient has a brain tumor, if pansinusitis is excluded, and if in that patient a unilateral retrobulbar neuritis develops, with a central scotoma and reduced visual acuity, then it is certain that the brain tumor is situated in the lower part of the frontal lobe on the same side on which the retrobulbar neuritis and the primary optic atrophy have occurred.

This syndrome evolves when, from the inception of the disease, one or the other optic nerve has been directly subjected to pressure. If, however, the tumor is placed in the substance of the frontal lobe, not implicating at first the underlying optic nerve but producing a general rise of intracranial pressure, there will be brought about a bilateral papilledema, without central scotoma or loss of visual acuity.

The tumor or chronic abscess expands until at last it presses directly on the upper surface of the ipsolateral optic nerve. The following phenomena will then result: the papilla contralateral to the tumor will remain edematous, and visual acuity in that eye will remain good. In the ipsolateral eye, visual acuity will quickly fail, a central scotoma will develop, the edema will subside rapidly, and in a few days' time well marked temporal pallor will be seen ophthalmoscopically, an expression of atrophy which at a later period will be observed over the whole disk.

TEMPOROSPHENOIDAL TUMORS

Phenomena of lateralizing value in temporosphenoidal tumors consist of the perversions of contiguous functions. The motor tracts and their cortical origins may become so compressed as to give rise to a considerable degree of hemiplegia, which is always most severe in the face, less in the arm, and least of all in the leg. Deep pressure may introduce thalamic coloring: paresis of emotional expression in the opposite face, and occasionally increased sensitiveness in the opposite side of the body. Rarely, athetosis may appear. I have seen fluctuating pressure on the midbrain by a temporosphenoidal tumor produce fluctuating Argyll Robertson pupillary reactions.

However, the most accurate localizing sign has been described elaborately by Harvey Cushing: a quadrantic homonymous hemianopic defect in the contralateral visual field. This occurs from involvement of Meyer's loop of temporal optic fibers; should pressure continue, the pulvinar or the main optic tract may be damaged, giving rise to a complete homonymous hemianopia. When aphasia is present, it is constant in character: a poverty of recollection of names, resulting in circumlocution and descriptive speech. There is perseveration of verbal error, with no difficulty in emission; word blindness does not occur. Almost never is there any word deafness; spoken commands are accurately performed; verbal mistakes are immediately recognized and, if possible, corrected. The power of discrimination in the value of words is proved by the fact that inaccurate promptings are invariably rejected. There is no true loss of word memory, only a dimming of word recollection. The memories are for the most part intact, but their facilitation is difficult, and the patient is unable by force of will to bring them above the threshold of consciousness, below which they lie latent and beyond his conscious grasp.

The dramatic features of temporosphenoidal neoplastic disease consist of sudden dreamy mental states, their subjective projections, and the crude explosive sensations of taste and smell with characteristically related chewing reflexes and grimaces of disgust, repulsion and fear. These psychic fits often consist of the sensation of having lived through the exact scene then being enacted (le sentiment du déjà vu). So acute is the sense of familiarity that a feeling of prescience exists whereby the subject feels as though he can foretell the next action and the next word that will be spoken. To this voluminous mental state may be added a peculiar thought-feeling or a spectral word heard in a world of unreal consciousness. In such states, ghostly visitors may appear, phantoms appearing real but always known to be phantoms. One of my patients with a verified right temporosphenoidal tumor would often see men and women in eighteenth century court dress strolling across her New York apartment! A woman in Bellevue Hospital would be terrified by the repeated vision of a beckoning woman dressed in blue standing to her left side. A complex visitant of another of my patients was "a little old woman dressed in stinking rags who kept ringing a bell," a projected thought associated with a crude subjective sensation of smell due to uncinate irritation. It should be noticed here that the results of uncinate irritation are always disgustingly unpleasant, probably a tribute to the severity of the disturbance; the pleasantest odor enormously multiplied would be unendurable. It is an odd circumstance that such complicated hallucinations as these come always from disease affecting the temporosphenoidal lobes. One of my patients, the wife of a Sussex farmer, in her attacks always saw the room filled with Negroes; yet she told me that she had never seen a Negro in her life. However, she was the daughter of a sergeant stationed in Jamaica and was brought home to England at the age of 2.

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[1] Kennedy, Foster: Stockbrainedness, Am. J. M. Sc. 152: 849 (Dec.) 1916.

Every individual, in his ascent from embryonic to adult life, passes through the stages through which the race has passed. The lower animals make their chief intellectual contact with their environment by means of the hippocampal lobes, which in man are relatively small and unimportant. It may well be that these areas subserve in man early intellectual functions which in later life are carried on by some higher mechanism. If this theory is true, then one may regard these apparitions as involuntary resuscitations of early, perhaps infantile, memory patterns. Almost every case of temporosphenoidal neoplasm presents, in my experience, some form of dreamy mental state, but similar events may occur within physiologic bounds. Not a few people have experienced panoramic and specific auditory projections when just on the threshold of sleep. Persons so affected have each their peculiar variety. My own species is a spectral phrase, always a cliché, such as "of course not" or "yes, surely," heard dimly like a stage prompt. Then comes a second or two of normality, long enough to recognize consciously the word as subconscious and to warn myself to be ready; then comes the silent spring-shutter change within the head, which breaks the thread of my previous thought so effectively that, should I not sleep immediately, I cannot recover the thread for several, perhaps ten, minutes. This period of inactivity following involuntary energy release is a characteristic feature of motor epilepsy and helps to classify properly these events of the predormitium as paroxysmal disorders, focalized, I believe, in the temporal lobe. Such considerations would indicate that thoughts and their wayward and fantastic sister, dreams, have dynamic neural patterns written by experience and released by altered physicochemical conditions.

410 East Fifty-Seventh Street.

Functions of the Skin.—The skin is one of the largest organs in the body, weighing, according to the data recorded by Vierordt, approximately three times as much as the liver. It is surprising, therefore, that aside from a partial understanding of its obvious protective, heat-regulating and sensory functions there is little knowledge of its physiologic activities or chemical composition and the factors that influence it. In the literature, moreover, there are many facts indicating the metabolic importance of the skin and suggesting that its functions may be as many and as varied as those of the liver. An inherent metabolism in the skin has been established by demonstrating the presence of enzymes affecting many of the complex constituents of the blood stream. Through the efforts of Wohlgemuth and his co-workers, and of Buschke and Klopstock and Melczer, the skin has been shown to contain an amylase, a diastase, glycolase, nuclease, tryptase, lipase, phenolase, catalase, phosphatase, sulphatase and carboxylase. Fahrig and Wohlgemuth and Ikebata found that skin, like other tissues, could produce lactic acid in vitro. . . . Urbach found that residual nonprotein nitrogen of the skin increased in cases of nitrogen retention. Ellinger showed that injected choline was stored in the skin. Milbradt considered the skin to be an important depot for cholesterol.—Kooyman, D. J.: Lipids of the Skin, *Arch. Dermat. & Syph.* **25**:245 (Feb.) 1932.

THE USE OF VEIN LIGATION IN THE TREATMENT OF ARTERIOSCLEROTIC AND DIABETIC GANGRENE *

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Modern studies on the physiology of the circulation have resulted in a distinct advance in the treatment of the vascular diseases of the extremities, associated with sympathetic vasomotor spasm. But the management of those disorders due to organic arterial obliteration in which sympathetic overactivity does not occur has not shared to the same extent in this progress. This is no doubt due to the fact that, in the group of obliterative vascular diseases, the primary cause of the disorder is not known and cannot be materially influenced. The pathologic process is progressive, and as the disease advances there is a steady diminution in the size of the available arterial channels and even complete obstruction of some of them. Since the etiologic agent is not known and cannot be influenced, the functional restitution of the obliterated vessels is impossible, and until more knowledge of the causative agent is available, the only therapeutic hope is to preserve and stimulate the remaining vascular pathways to carry on a competent circulation. To this end, operations on the blood vessels are justifiable, but it must always be appreciated that such an attack is indirect and essentially palliative and in no way alters the cause of the disorder.

Since serious, obliterative peripheral vascular disease occurs most frequently in patients with diabetes, the advent of insulin has altered the treatment of these cases. Before this drug was available the appearance of diabetic gangrene often demanded amputation as a life saving measure, but now it is possible to control the diabetic state and to use conservative surgical measures in many instances without endangering the life of the patient.

There are two methods of conservative treatment of obliterative arterial diseases. The first may be termed the nonsurgical means of stimulating the peripheral circulation and includes the judicious use of heat or contrast baths, the use of rest in bed combined with appropriate exercise, such as walking or Buerger exercises or both, the use of massage or other physical therapeutic agents and finally the use of nonspecific protein therapy. The latter procedure is not without danger in cases of arteriosclerosis, for instances of thrombosis have resulted from its use. The second method is the utilization of conservative surgical procedures which have the stimulation of the circulation as their object. Included in the latter class are the operations of reversal of the circulation by arteriovenous anastomosis, periarterial sympthectomy, arterial excision and vein ligation.

The latter operation, obstruction of the vein, has been used in this clinic in the treatment of obliterative vascular disease of the lower extremity for the past four years. This procedure, originated by von Oppel in 1913, has never had a wide use and only thirty-one cases are reported in the literature. There is no report of a series of cases in which the results are known a year or more after operation. It seemed worth while to record our experience with vein ligation in occlusive arterial disease. A series of twenty cases was collected, in which the operation was done from one to four years ago and in which the late results were known. Cases without follow-up data and those in which the patient was living and under observation less than one year were excluded. This series is unselected. Although cases are included which undoubtedly would not be chosen at present, it is felt that their presentation in this way gives the clearest conception of the indications for and limitations of the procedure.

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THE RATIONALE OF VEIN LIGATION IN OCCLUSIVE ARTERIAL DISEASE

The development of elective, therapeutic venous ligation is one of the most interesting subjects in modern surgery. The present conception is that ligation of a large artery should be accompanied by ligation of its companion vein. This point of view is directly opposite to the older teaching that the vein should be preserved at all costs. The original observation which brought about this change was made by von Oppel,[1] who had a clear conception of the part played by the vein in the mechanics of a reduced arterial circulation. He[2] says: "I speak sufficiently freely of the significance of the venous stasis, because in line with experimental investigations and clinical observations I showed that limiting the return flow of the ligated vein is accompanied by an increase in the arterial pressure." Again he speaks of "suction by the veins of the collateral arterial blood," and he says "If . . . the vein is ligated the arterial and venous pressure . . . are materially elevated." Von Oppel also first proposed vein ligation as a treatment of obliterative arterial disease. Four years later the principle of elective vein ligation became firmly established through the efforts of Sir George Makins[3] The observations of Sehrt,[4] Propping,[5] Tuffier[6] and van Kend[7] contributed at this time to clarify the indications for the procedure. Subsequently the investigations of Halsted,[8] Brooks,[9] Holman[10] and others[11] have added to the information about the subject. It has been established that if occlusion of a large artery is accompanied by ligation of its companion vein it results in (1) a lower incidence of gangrene, (2) an increase in functional capacity, (3) an increase in intravascular arterial and venous pressure, (4) an increase in the distal arterial circulatory bed, and (5) probably an increase in the functional efficiency of the capillaries, though direct evidence for this is lacking. From theoretical considerations it would appear that the volume flow should be diminished, and this has recently been demonstrated by direct readings.[12]

Because of its influence on the arterial circulation, therapeutic vein ligation has been suggested in (*a*) cases of sudden arterial obstruction, as by a ligature, (*b*) cases of arteriovenous aneurysm, and (*c*) cases of gradual arterial obliteration. It is obvious that the intravascular mechanics of these conditions differ but they have in common arterial ischemia and reduced arterial pressure. It probably is because of this that vein ligation has influence. Only cases of obliterative vascular disease will be considered here. In all, thirty-one cases are reported in the literature, in which this operation has been done, but the end-results of many are not given. In the absence of definite data, it is impossible to draw conclusions from these case reports, but the impression is gained that approximately 50 per cent of the cases were benefited, while the remainder were unimproved. There are an additional twenty cases recorded in which vein ligation was done in conjunction with periarterial sympathectomy or arterial excision.[13]

SELECTION OF SUITABLE CASES

A study of the twenty unselected cases here reported shows that eight had satisfactory results, eight were failures and four terminated fatally within one year of operation without amputation. This gives a successful result in half the living cases, which corresponds to the impression gained from the literature. It follows that, since vein ligation appears to have benefit in some instances, the patients designated for the procedure should be carefully selected in order to eliminate those who are unsuitable. From the experience which has been gained in the past, it has been found convenient to group the patients with obliterative arterial disease into three classes. This classification is based on the study of the history, physical examination, laboratory procedures and observations on the following points:

1. Location and extent of gangrene if it is present.
2. Color of tissues in the elevated, horizontal and dependent positions.
3. Presence or absence of edema or infection.
4. Character of the pulsation in the arteries of the limb.
5. Rate of return of circulation after blanching by pressure.
6. Apparent temperature of the extremities.
7. The amount and character of pain.
8. Appearance of the skin and nails.
9. Presence or absence of muscle atrophy.

The following supplementary procedures may be undertaken:

1. Intradermal saline test.
2. Pachon oscillometer or recording sphygmomanometer readings.[14]
3. Temperature readings with or without nerve block.

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[1] Oppel, V. A.: Operation of Wieting and Reduced Circulation of Blood, Vrach. Gaz. **20**: 303, 1913; Zentralbl. f. Chir. **40**: 1241, 1913.

[2] I am indebted to Dr. John Polansky for translation of the paper from the Russian.

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[5] Propping, K.: Ueber die Ursache der Gangrän nach Unterbindung grosser Arterien, München. med. Wchnschr. **64**: 598, 1917.

[6] Tuffier, T.: A propos der plaies des artères, Bull. et mém. Soc. de Chir. de Paris **43**: 1469, 1917.

[7] van Kend, M.: Compt. rend. conf. chir. internat., Paris, 1917, p. 348.

[8] Halsted, W. S.: Ligation of the Left Subclavian Artery in Its First Portion, Johns Hopkins Hosp. Rep. **21**: 1, 1921.

[9] Brooks, Barney; and Martin, K. A.: Simultaneous Ligation of Vein and Artery: An Experimental Study, J. A. M. A. **80**: 1678 (June 9) 1923. Brooks, Barney: Diseases of the Blood Vascular System of the Extremities, J. Bone & Joint Surg. **6**: 326 (April) 1924; Surgical Applications of Therapeutic Venous Obstruction, Arch. Surg. **19**: 1 (July) 1929.

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[11] Heidrich, L.: Ueber Ursache und Häufigheit der Nekrose bei Ligaturen grosser Gefässstämme, Beitr. z. klin. Chir. **124**: 607, 1921. Pearse, H. E.: A New Explanation of the Improved Results Following Ligation of Both Artery and Vein, Ann. Surg. **86**: 850 (Dec.) 1927. Theis, F. V.: Ligation of Artery and Concomitant Vein in Operations on the Large Blood Vessels, Arch. Surg. **17**: 244 (Aug.) 1928. Montgomery, M. L.: Effect of Therapeutic Venous Ligation on Blood Flow in Cases of Arterial Obstruction, Proc. Soc. Exper. Biol. & Med. **27**: 178, 1929-1930. Spurrell, W. R.: An Experimental Study of the Circulatory Changes Following Ligation of the Main Artery and Vein to the Hind Limb, Guy's Hosp. Rep. **80**: 20 (Jan.) 1930.

[12] Montgomery (footnote 11).

[13] Stradin, P.: Ueber die periarterielle [illegible] Ztschr. f. Chir. **194**: 338, 1926. Brooke, R [illegible] tomy with Ligature of the Femoral Vein in t [illegible] Gangrene, Brit. J. Surg. **15**: 286 (Oct.) 192 [illegible] High Vein Ligation in Thrombo-Angiitis Obliterans, Ann. Surg. **90**: 88 (July) 1929. Lehman, E. P.: Sympathectomy by Arterial Excision, Arch. Surg. **21**: 838 (Nov.) 1930.

[14] Pearse, H. E., and Morton, J. J.: The Blood Pressure in the Arteries of the Extremities in Normal Subjects and in Patient with Peripheral Vascular Disease, Am. J. M. Sc., to be published.

4. Roentgen treatment for calcification of vessels. (Recently arteriography with a new medium[15] has been used.)
5. Photograph or drawing to show exact extent of disease.
6. The Moschowitz test and the intradermal histamine test, which have occasionally been used.
7. Capillary microscopy (unsatisfactory because of the thickening of the epidermis in these cases).

In general, the five most useful observations are the amount of pain, the presence of gangrene, the pulsation in the peripheral vessels, the changes in appearance with shift in position and the rate of capillary return after blanching.

On the basis of the observations, cases are classified into three groups: (1) cases in which leg amputation should be done; (2) cases in which leg amputation should not be done, and (3) borderline cases.

Group 1 includes: 1. Cases presenting a poor circulation, which show either a spreading infection with lymphangiitis and perivenous inflammation or a gas bacillus infection. In the latter, leg amputation should be done immediately. Temporizing may lead to septicemia and death. 2. Cases presenting an incompetent arterial circulation. In this group are patients with a cold, pulseless, painful gangrenous extremity with atrophic muscles, hypertrophied nails and shiny skin which show ischemic pallor on elevation and cyanotic rubor on dependence. If the arterial circulation is hopelessly damaged, an amputation suitable to the patient's needs is the only beneficial procedure. Palliative measures are useless.

Group 2 includes cases in which there is infection, gangrene following infection, osteomyelitis of a phalanx, or ulcer formation, in the presence of a good circulation. The great majority of these cases will respond to proper conservative surgical measures, such as excision of the toes or drainage of infection. If the operation on the local lesion is not well executed, it may defeat the purpose of the therapy. Since the circulation is good, operations on the vessels are unwarranted.

Group 3 includes the borderline cases, in which leg amputation may or may not be needed. Some patients cannot be so neatly catalogued as those in the first two groups. They are in the borderline class, intermediate between those who should get well on conservative measures and those who are inevitably doomed to leg amputation. They show evidences of arterial obliteration by means of faint or absent dorsalis pedis and posterior tibial pulses, by slight delay in return of the circulation after blanching, by moderate coldness of the feet, by definite but not severe changes in color with shift of position, and perhaps by changes in the character of the nails and skin. Pain at rest, out of proportion to the local lesion, is absent. Gangrene or infection or both may be present. The pulse of the popliteal and femoral arteries is palpable. Since such changes indicate moderate but not hopeless arterial damage, it is highly desirable to stimulate the peripheral circulation. It is in these cases that operations on the vessels are justifiable and that vein ligation has been used as the method of choice.

Table 1.—*Published Cases of Vein Ligation*

Author	Year	Cases	Diagnosis	Vein Ligated	Result
Von Oppel[1]	1913	6	Arteriosclerosis	Popliteal	1 failure; 5 improved; "color and heat returns . . . with no edema"; relief of pain; period of improvement up to six months
Fedorovich, cited by von Oppel[1]	?	1	Arteriosclerosis	Popliteal (?)	"Long improvement"
Lidski: Zentralbl. f. chir. **40**: 1241, 1913	1913	3	Arteriosclerosis	....	2 successful cases, 1 failure
Horsley: J. A. M. A. **64**: 873, 1915	1915	?	Arteriosclerosis	Femoral	Use of vein ligation mentioned; number of cases or results not given
Ginsburg: Am. J. M. Sc. **154**: 328, 1917	1917	4	Thrombo-angiitis	Femoral	1 cure; 1 improved; 2 failures
Bernheim: Am. J. M. Sc. **163**: 517, 1922	1922	?	?	?	Vein ligation done in a number of instances; rise in temperature, relief of pain and healing of ulcers noted; no permanent cure
Thurston: Bull. U. S. Vet. Bur. Med. **1**: 18 1925	1925	?	Thrombo-angiitis	Femoral	Use of vein ligation mentioned; number of cases not stated; all failures
McNealy: Surg. Gynec. Obst. **40**: 45, 1925	1925	6	Arteriosclerosis	?	1 apparent cure; 5 (?) transient improvement
VanGorder: Ann. Surg. **90**: 88, 1929	1929	7	Thrombo-angiitis	Femoral ext. iliac	For ulceration of amputation stumps in 2 cases (one bilateral), all improved; remaining 5 cases improved; no amputation in from 2 to 11 months follow-up
McWhorter, cited by Theis: Arch. Surg. **17**: 244, 1928	1928	3	Thrombo-angiitis	Femoral (?)	1 improved; 2 failures
McKittrick: Arch. Surg. **21**: 555, 1930	1930	1	Arteriosclerosis	Popliteal	Failure

There are some patients who are exceptions to the foregoing rules. They are the ones who already have one leg amputated and in whom symptoms of arterial insufficiency develop in the remaining limb. These unfortunate individuals deserve every consideration to prevent bilateral amputation. Since vein ligation is a simple procedure, done under local anesthesia, it is frequently tried even when there is little hope of improvement. The occasional saving of a limb encourages one to continue this procedure.

METHODS

In the management of cases of sclerotic arterial disease by conservative measures, patience and attention to detail are necessary. The vein ligation is but an incident in the treatment and must be associated with other measures to secure a good result. Among these are the careful preoperative preparation of the patient, the use of spinal or local anesthesia, the treatment of the local lesion and the postoperative care. The operative procedures used on the local lesion are adapted from those of McKittrick.[16] Gangrenous toes, osteomyelitis of a phalanx, ulcers and infections are treated surgically. Toes are amputated with a racquet incision, ending on the dorsum of the foot; the heads of the metatarsal are excised, and the wound is converted into a gutter, drawing onto the dorsum. In the amputation of toes or the drainage of infection, continuous incisions are used, dependent drainage is sought, and pockets are avoided. Wounds are irrigated with surgical solution of chlorinated soda during the postoperative period. For the venous obstruction, either the femoral or the popliteal vein may be used. The femoral vein is exposed in Scarpa's triangle, doubly ligated, and divided below the great saphenous vein. The popliteal vein is exposed in the lower part of the popliteal space and is occluded below its junction with the lesser saphenous vein. The femoral vein is easier to expose, and its ligation is probably preferable, especially if the pulse of the popliteal artery is weak. Ligation of the external iliac vein as advocated by van Gorder has not been used.

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[15] Pearse, H. E., and Warren, S. L.: The Roentgenographic Visualization of the Arteries of the Extremities in Peripheral Vascular Disease, Ann. Surg. **94**: 1094 (Dec.) 1931.

[16] McKittrick, L. S., and Pratt, T. C.: The Operative Treatment of Lesions of the Lower Extremities in Diabetes Mellitus, Arch. Surg. **21**: 555 (Oct.) 1930. McKittrick, L. S., and Root, H. F.: Diabetic Surgery, Philadelphia, Lea & Febiger, 1928.

During the postoperative period, general systemic treatment is given according to the conditions that prevail. The following accessory measures are often used: 1. The feet and legs are protected by a large cradle, which is kept warm by a light. 2. A Balkan frame with a hand trapeze is used to prevent pressure on the heels while the patient is moving about in bed. 3. Woolen socks are worn for warmth and to prevent skin excoriation. 4. The feet are bathed and anointed with hydrous wool fat daily. 5. Special care is given the back. 6. Supervised exercises, massage and gradual weight bearing are instituted.

RESULTS

The beneficial effects of vein ligation are the subjective sensation of warmth, the diminution in pain and the objective changes in the limb. These include accelerated healing of the local lesion, increase in the rate of return of the circulation after blanching, improvement in the color of the extremity, and increase in temperature of the part. It has previously been recorded[17] that a foot, formerly colder than the opposite side, is made persistently warmer by vein ligation.

The only possible detrimental effect of deep venous obstruction would be edema. Brooks[18] states that it is to be expected, but experience has shown that it rarely occurs. In approximately thirty operations of vein ligation, persistent edema occurred in only one patient. In this instance the placing of the ligature on the popliteal vein above the lesser saphenous branch obstructed the deep and a part of the superficial venous return. This result is ascribed to a technical error rather than to a fundamental fault in the method.

In table 1 is given the record of the case reports previously published. From this table it is seen that four-

Table 2.—*Case Reports*

Patient	Diagnosis	Duration	Local Lesion	Duration	Clinical Impression of Circulation	Dorsalis Pedis	Posterior Tibial	Popliteal	Femoral	Operation	Date	Result
1. F. B.	Thrombo-angiitis	4 mo.	Gangrene, 1st toe, left	2 weeks	Poor	0	0	0	+	Popliteal vein ligation	6/28/27	Died 2/8/28: cardiac insufficiency
2. I. G.	Diabetes	18 years	Thigh amputation with spreading gangrene stump	1 week	Poor	0	0	0	+	Femoral vein ligation	10/18/27	Satisfactory healing
3. M. S.	Diabetes	14 years	Gangrene 2d and 3d toes, right	1 week	Good	+	+	++	++	Popliteal vein ligation; amputation 2, 3 toes	10/14/27	Satisfactory 4/20/31
4. M. W.	Diabetes	?	Gangrene 1st toe, right; ulcer right foot	5 weeks	Poor	0	0	0	+	Popliteal vein ligation	12/13/27	Diabetic coma; died 5/7/28
5. D. (R.G.H.)	Thrombo-angiitis	?	Gangrene 1st toe, left	3 weeks?	Poor	0	0	0	+	Popliteal vein ligation	2/ 3/28	Amputation
6. V. D.	Diabetes	4 years	Ulcer dorsum right foot, with gangrene	10 days	Fair	0	0	+	+–	Popliteal vein ligation	2/19/28	Amputation 9/22/28
7. J. B.	Diabetes	4 years	Gangrene 2d, 3d, 4th toes	4 days	Poor	0	0	0	0	Popliteal vein ligation	2/ 4/28	Amputation 2/13/28
8. C. H.	Arterio-sclerosis	?	Gangrene 1st, 2d 3d and 4th toes, right	12 days	Fair	0	0	+	++	Popliteal vein ligation; amputation toes	3/28/28	Died, cerebral hemorrhage 5/4/28
9. J. B.	Diabetes	7 years	Ulcer right foot	2 weeks	Poor	0	0	0	0	Popliteal vein ligation	4/ 2/28	Amputation 5/17/28
10. M. L.	Diabetes	?	Gangrene 3d toe, right	....	Fair	?	0	++	++	Popliteal vein ligation; amputation toes	5/13/29	Satisfactory 5/12/31
11. R. E.	Diabetes	14 years	Gangrene left great toe Infected left great toe	1 week 1 year	Fair	0	0	+	++	Popliteal vein ligation; amputation left first toe	10/12/28	Amputation 10/29/28
12. E. T.	Diabetes	8 years	Gangrene 3d toe, left	3 days	Fair	0	0	+	++	Popliteal vein ligation; amputation toes	7/ 3/28	Amputation 10/1/28
13. O. B.	Diabetes	10 years	Gangrene 2d toe, left	....	Fair	0	0	++	++	Popliteal vein ligation; amputation toes	3/12/29	Satisfactory 3/15/31
14. M. S.	Diabetes	?	Gangrene 1st toe, right; gangrene left foot	1 week	Fair	0	0	+	+–	Popliteal vein ligation; four amputated toes; amputated left leg	3/15/29	Satisfactory 5/6/31
15. E. L.	Diabetes	6 years	Ulcer right foot: gangrene 1st and 2d toes, right	3 mo. 1 week	Fair	0	0	+	++	Popliteal vein ligation	2/18/29	Amputation 2/28/29
16. A. G.	Diabetes	8 years	Gangrene 2d toe, left	3 days	Fair	0	?	++	+–	Popliteal vein ligation	5/ 9/28	Satisfactory 7/31/29
17. M. T.	Diabetes	?	Gangrene 2d toe, right	4 days	Fair	0	0	+	+	Popliteal vein ligation	1/22/30	Satisfactory 1/17/31
18. J. K.	Diabetes	1 year	Gangrene 1st toe, right, left	2 weeks	Rt. fair Lt. poor	0 0	0 0	+ 0	++ 0	Popliteal vein ligation, right; amputation left leg	2/19/29	Died, gas bacillus infection left leg 2/21/29
19. D. R.	Diabetes	3 years	Gangrene 5th toe, left	1 week	Poor	0	0	0	0	Ligation femoral vein	9/ 9/29	Amputation leg 12/24/29
20. D. R.	Diabetes	8 years	Painful cold, right foot	1 mo.	Fair	0	0	+	+	Popliteal vein ligation	4/23/30	Satisfactory 4/28/31

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[17] Morton, J. J., and Pearse, H. E., Jr.: Temperature Effect of Popliteal Vein Ligation in Thrombo-Angiitis Obliterans and Arteriosclerosis, Ann. Surg. **88**: 233 (Aug.) 1928.

[18] Brooks (footnote 9, third reference).

teen cases are diagnosed as thrombo-angiitis obliterans and seventeen as arteriosclerosis. A record of the cases reported from this clinic is given in table 2. Two are classed as thrombo-angiitis obliterans and the remaining eighteen as arteriosclerosis. This gives a total of sixteen cases of thrombo-angiitis, with ten cases showing improvement and six failure. Our own slight experience with vein ligation in thrombo-angiitis obliterans has been disappointing. In the group of peripheral vascular disease due to arteriosclerosis with or without diabetes, nine patients are reported as improved and nine as unimproved. In the series here reported, eight patients are improved after a year or more, eight have had leg amputation and four have died within a year of operation without amputation. Of the living patients, half have shown a successful outcome. This result is modified by critical analysis. For example, it will be seen in table 2 that case 3 is classed as showing a good circulation and that the pulse of the dorsalis pedis and posterior tibial arteries is perceptible. Such a patient has gangrene from infection and not from circulatory deficiency and would recover with proper treatment of the local lesion. This satisfactory result should not be credited to vein ligation.

If this patient, the patient presenting gangrene of an amputation stump (case 2), and those who died within a year (patients 1, 4, 8, 18) are excluded, there remain fourteen for analysis. Of the latter, four are classed as having a poor circulation without pulsation in either the popliteal or the femoral artery. All were failures. Such unsuitable cases should have primary leg amputation. Of the remaining ten patients, who are classed as having a fair circulation with a pulsating popliteal artery, nine had gangrene of the extremity. Of these ten patients, four (40 per cent) had leg amputation within a year and six (60 per cent) have had a satisfactory result with full return of function. This group represents properly selected cases according to the present conception.

It is felt that this series gives a fair idea of what may be expected from vein ligation in diabetic or arteriosclerotic gangrene, for the following reasons: The patients were treated by six different surgeons; the status of the peripheral circulation in the patients reported was good, bad and indifferent, and, though the conservative treatment of the lesion did not result in septicemia or death in any instance, the mortality rate from other causes was about average for such a series.

Too much should not be expected of any one procedure in these cases. Vein ligation should be only a part of the treatment of the patient and of the local lesion. Its use in appropriate cases is of value and often definitely improves the peripheral circulation so that a good functioning foot is preserved.

SUMMARY AND CONCLUSIONS

1. In obliterative vascular disease of the extremities, operations on the blood vessels are justifiable but are essentially palliative since they do not affect the cause of the original disorder.
2. The effect of venous obstruction in the presence of arterial insufficiency makes it a desirable procedure in appropriate cases.
3. Thirty-one cases in which this operation was performed are collected from the literature and twenty additional ones, followed for a year or more, are reported.
4. Analysis of these fifty-one unselected cases shows that approximately half were benefited, while leg amputation was done in the remainder after a variable period of improvement.
5. A basis for selection of cases is given which creates three groups: (1) those which show a hopelessly damaged circulation, requiring leg amputation; (2) those which result from infection and require only treatment of the local lesion, and (3) those in which there is a fair circulation, with a patent popliteal artery but absent peripheral pulses, and in which conservative treatment including vein ligation should be given.
6. Analysis of the suitable cases shows that in 40 per cent leg amputation was needed within a year, while 60 per cent had a satisfactory result with return of function.
7. Vein ligation should be considered as only a part of the care of these patients. Its use in appropriate cases definitely increases the efficiency of the circulation of the extremity and helps to avoid leg amputation.

Strong Memorial Hospital.

PATHOGENESIS OF CHRONIC HEREDITARY EDEMA OF EXTREMITIES (MILROY'S DISEASE) *

JOHNSON McGUIRE, M.D.
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CINCINNATI

The paucity of knowledge regarding the pathogenesis of hereditary edema of the extremities justifies the description of a characteristic case which we have had the opportunity to observe for several years and from which sections of skin have been examined on two occasions.

The earliest descriptions of this peculiar disease were published almost simultaneously by Nonne[1] and by Milroy.[2] Subsequently several additional cases have been described and various theories advanced concerning the etiology of the condition.

The characteristics of the disease may be summarized as follows:

1. The condition is always hereditary.
2. Only the lower extremities are affected.
3. There is no evidence of local obstruction or of the usual constitutional causes of edema.
4. The edema is persistent.
5. The state of general health is excellent and longevity is the rule.

As none of the recorded cases have come to autopsy and as there is no report regarding material obtained at biopsy, the pathogenesis of the condition remains obscure.

Among the hypotheses that have been advanced is the theory of Meige,[3] who believes that there is a congenital malformation of the trophic centers in the spinal cord, regulating the growth of cellular tissue. Rapin[4] postulates an embryonic dyscrasia of the mesoblast. Valobra[5] implicates the nervous centers controlling

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* From the Departments of Medicine and Pathology, University of Cincinnati.

[1] Nonne, M.: Vier Fälle von Elephantiasis congenita hereditara, Virchows Arch. f. path. Anat. **125:** 189, 1891.

[2] Milroy, W. F.: An Undescribed Variety of Hereditary Edema, New York M. J. **16:** 505, 1892.

[3] Meige, H.: Le trophoedème chronique héréditaire, Nouv. iconog. de la Salpêtrière **12:** 453, 1899.

[4] Rapin, E.: Sur une forme d'hypertrophie des membres, Nouv. iconog. de la Salpêtrière **14:** 472, 1901.

[5] Valobra, I.: Les oedèmes circonscrits aigus et chroniques sous la dépendance du système nerveux (rôle de la sécrétion lymphatique dans leur pathogénie), Nouv. iconog. de la Salpêtrière **18:** 201, 255, 1905.

lymph secretion. Spiller[6] suggests some endocrinopathy as the causative factor. Rietti[7] has demonstrated in one case the reversal of the albumin-globulin ratio. Milroy[8] in a recent article speculates on the rôle played by the vasomotor nerves in the causation of the edema.

Filarial invasion of the lymphatics and repeated attacks of streptococcal cellulitis have also been considered as possible etiologic agents. Hope and French,[9] in 1907, described curious acute attacks in cases of hereditary edema, with general redness and heat of the affected extremity, accompanied by chills, fever and general malaise.

REPORT OF CASE

Family History.—The grandfather of the patient had "swollen legs" and is the first member of the family in whom this condition has been noted. He was married twice and his first wife bore two daughters. One died in infancy of unknown cause; the second developed edema of the legs at puberty. Her children, two girls, were likewise affected with edema of the legs at puberty. By his second marriage several children were born, but information was obtained about only two of them. Both were males and had swelling of the legs, which began at about the fourteenth year. One, the father of the patient, has been married twice. By his first wife two children were born and have remained normal. One is 30 and the other 35 years of age. By the second wife two children were born, the patient and his brother. Both have edema of the legs.

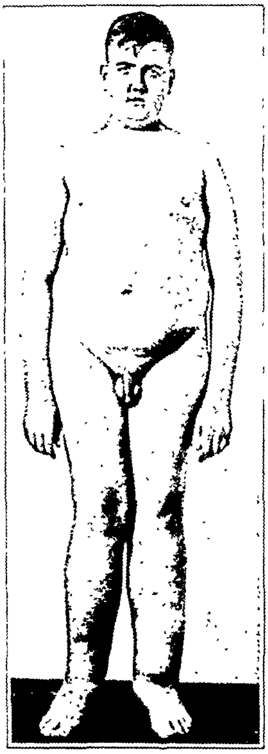

Fig. 1.—Appearance of patient in November, 1928.

Present Illness.—Two years ago, when 13, the patient noticed that his legs were beginning to swell. There was no pain, tenderness or constitutional disturbance. Since that time there has been progressive increase in the degree of edema, but until recently the only symptom noted was difficulty in walking, caused by the mechanical interference of the edema.

One month before admission to the hospital, the boy had a sudden acute febrile illness associated with a severe chill, headache, vomiting, tenderness and soreness in the right leg. The left leg was unchanged. He felt bad for four days thereafter, and then the symptoms disappeared. Two weeks later a similar attack occurred.

Physical Examination.—On admission, Nov. 24, 1928, the patient's temperature was 97 F., the pulse 90, and respirations 27. He weighed 205 pounds (93 Kg.). The patient was a fat boy, aged 15, with wide hips, unusually prominent breasts and scanty axillary and pubic hair (fig. 1). The external genitalia were underdeveloped. There was enormous edema of the ankles and of the legs between the knees and ankles. This edema was semisolid in character, pitting occurring only after prolonged pressure. The leg was cool and not tender, and the skin was thick, as in a case of myxedema.

In addition to the observations enumerated, there was slight limitation of the temporal fields of vision. The ocular fundi were essentially normal The disks, however, were somewhat oval, with the long diameter vertically situated. There was slight ocular motor weakness on the right side. The cranial nerves otherwise were normal. There was no nystagmus and no weakness of the arms or legs. The deep and superficial reflexes were normally active. The ears, nose and mouth showed nothing of interest. No abnormalities were noted in the neck.

Measurements of Legs

	Right Leg	Left Leg
Ankle	35 cm.	41 cm.
Calf (10 cm. below patella)........	44 cm.	46 cm
Calf (immediately below patella)...	45 cm.	45 cm.

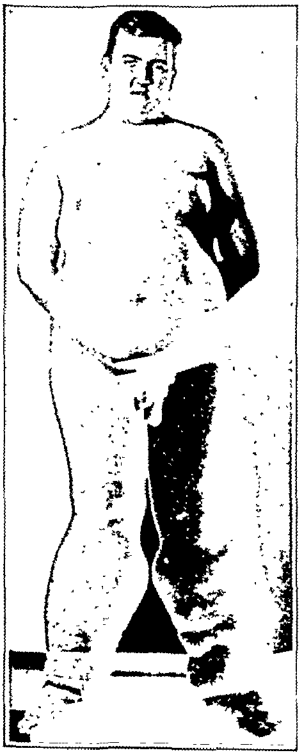

Fig. 2.—Appearance just before Kondoleon operation.

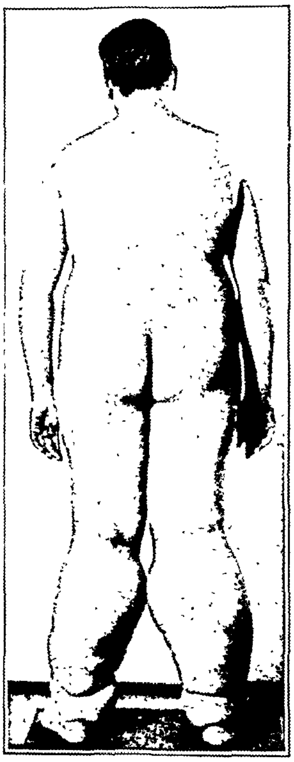

Fig. 3.—Posterior view of patient just before Kondoleon operation.

The heart was not enlarged. The pulse was occasionally intermittent. A soft systolic murmur was present at the apex. The lungs were clear. No tenderness was elicited in the abdomen, and the liver, kidneys and spleen were not palpable. The skeletal and lymphatic systems were normal.

The diagnoses were: (1) Milroy's disease; (2) Fröhlich's syndrome.

Laboratory Examination.—The results of the laboratory examinations may be thus summarized:

Microscopic examination of blood, negative. No filariae were seen. (Preparations made during the day and night.)

Urine, normal.

Chemical analysis of the blood: urea, 11; sugar, 65; sodium chloride, 427.

Dextrose tolerance, normal.

Roentgen examination of the skull: upright posterior clinoid and enlarged sella turcica; no erosion.

Basal metabolic rate, —15.

Perimetric examination, concentric limitation of visual fields.

Blood culture, negative.

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[6] Spiller, quoted by Ayala, G.: Le trophoedème chronique et le système endo-crinosympathique, Encéphale **1:** 319, 1913.

[7] Rietti, Fernando: Chronic Trophedema (Meige), Policlinico (sez. med.) **31:** 520 (Oct.), 608 (Nov.) 1924.

[8] Milroy, W. F.: Chronic Hereditary Edema: Milroy's Disease, J. A. M. A. **91:** 1172 (Oct. 20) 1928.

[9] Hope, W. B., and French, H.: Persistent Hereditary Edema of the Legs, with Acute Exacerbations: Milroy's Disease, Quart. J. Med **1:** 312, 1907.

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2. Only the lower extremities are affected.
3. There is no evidence of local obstruction or of the usual constitutional causes of edema.
4. The edema is persistent.
5. The state of general health is excellent and longevity is the rule.

As none of the recorded cases have come to autopsy and as there is no report regarding material obtained at biopsy, the pathogenesis of the condition remains obscure.

Among the hypotheses that have been advanced is the theory of Meige,[3] who believes that there is a congenital malformation of the trophic centers in the spinal cord, regulating the growth of cellular tissue. Rapin[4] postulates an embryonic dyscrasia of the mesoblast. Valobra[5] implicates the nervous centers controlling lymph secretion. Spiller[6] suggests some endocrinopathy as the causative factor. Rietti[7] has demonstrated in one case the reversal of the albumin-globulin ratio. Milroy[8] in a recent article speculates on the rôle played by the vasomotor nerves in the causation of the edema.

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[*] From the Departments of Medicine and Pathology, University of Cincinnati.

[1] Nonne, M.: Vier Fälle von Elephantiasis congenita hereditara, Virchows Arch. f. path. Anat. **123**: 189, 1891.

[2] Milroy, W. F.: An Undescribed Variety of Hereditary Edema, New York M. J. **16**: 505, 1892.

[3] Meige, H.: Le trophoedème chronique héréditaire, Nouv. iconog. de la Salpêtrière **12**: 453, 1899.

[4] Rapin, E.: Sur une forme d'hypertrophie des membres, Nouv. iconog. de la Salpêtrière **14**: 472, 1901.

[5] Valobra, I.: Les oedèmes circonscrits aigus et chroniques sous la dépendance du système nerveux (rôle de la sécrétion lymphatique dans leur pathogénie), Nouv. iconog. de la Salpêtrière **18**: 201, 255, 1905.

Filarial invasion of the lymphatics and repeated attacks of streptococcal cellulitis have also been considered as possible etiologic agents. Hope and French,[9] in 1907, described curious acute attacks in cases of hereditary edema, with general redness and heat of the affected extremity, accompanied by chills, fever and general malaise.

REPORT OF CASE

Family History.—The grandfather of the patient had "swollen legs" and is the first member of the family in whom this condition has been noted. He was married twice and his first wife bore two daughters. One died in infancy of unknown cause; the second developed edema of the legs at puberty. Her children, two girls, were likewise affected with edema of the legs at puberty. By his second marriage several children were born, but information was obtained about only two of them. Both were males and had swelling of the legs, which began at about the fourteenth year. One, the father of the patient, has been married twice. By his first wife two children were born and have remained normal. One is 30 and the other 35 years of age. By the second wife two children were born, the patient and his brother. Both have edema of the legs.

Present Illness.—Two years ago, when 13, the patient noticed that his legs were beginning to swell. There was no pain, tenderness or constitutional disturbance. Since that time there has been progressive increase in the degree of edema, but until recently the only symptom noted was difficulty in walking, caused by the mechanical interference of the edema.

One month before admission to the hospital, the boy had a sudden acute febrile illness associated with a severe chill, headache, vomiting, tenderness and soreness in the right leg. The left leg was unchanged. He felt bad for four days thereafter, and then the symptoms disappeared. Two weeks later a similar attack occurred.

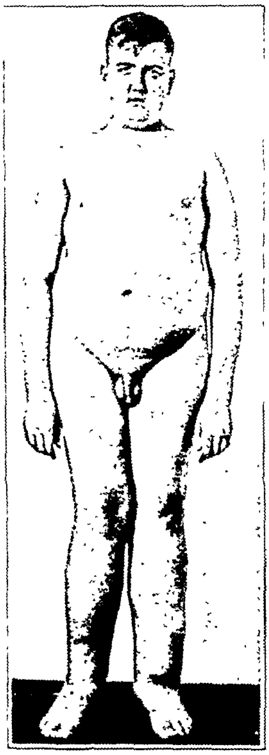

Fig. 1.—Appearance of patient in November, 1928.

Physical Examination.—On admission, Nov. 24, 1928, the patient's temperature was 97 F., the pulse 90, and respirations 27. He weighed 205 pounds (93 Kg.). The patient was a fat boy, aged 15, with wide hips, unusually prominent breasts and scanty axillary and pubic hair (fig. 1). The external genitalia were underdeveloped. There was enormous edema of the ankles and of the legs between the knees and ankles. This edema was semisolid in character, pitting occurring only after prolonged pressure. The leg was cool and not tender, and the skin was thick, as in a case of myxedema.

In addition to the observations enumerated, there was slight limitation of the temporal fields of vision. The ocular fundi were essentially normal The disks, however, were somewhat oval, with the long diameter vertically situated. There was slight ocular moto: weakness on the right side. The cranial nerves otherwise were normal. There was no nystagmus and no weakness of the arms or legs. The deep and superficial reflexes were normally active. The ears, nose and mouth showed nothing of interest. No abnormalities were noted in the neck.

Measurements of Legs

	Right Leg	Left Leg
Ankle	35 cm.	41 cm.
Calf (10 cm. below patella)	44 cm.	46 cm.
Calf (immediately below patella)	45 cm.	45 cm.

The heart was not enlarged. The pulse was occasionally intermittent. A soft systolic murmur was present at the apex. The lungs were clear. No tenderness was elicited in the abdomen, and the liver, kidneys and spleen were not palpable. The skeletal and lymphatic systems were normal.

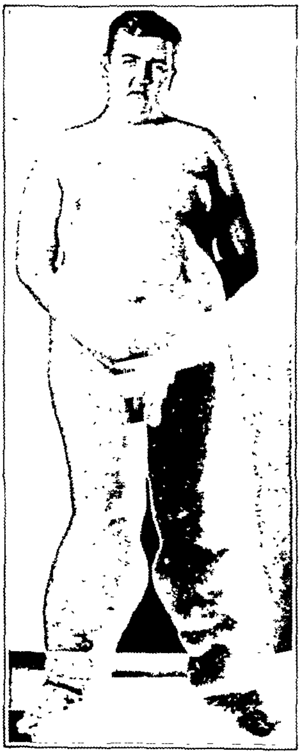

Fig. 2.—Appearance just before Kondoleon operation.

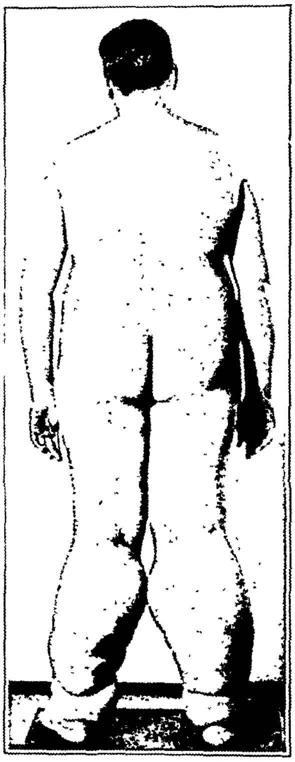

Fig. 3.—Posterior view of patient just before Kondoleon operation.

The diagnoses were: (1) Milroy's disease; (2) Fröhlich's syndrome.

Laboratory Examination.—The results of the laboratory examinations may be thus summarized:

Microscopic examination of blood, negative. No filariae were seen. (Preparations made during the day and night.)

Urine, normal.

Chemical analysis of the blood: urea, 11; sugar, 65; sodium chloride, 427.

Dextrose tolerance, normal.

Roentgen examination of the skull: upright posterior clinoid and enlarged sella turcica; no erosion.

Basal metabolic rate, —15.

Perimetric examination, concentric limitation of visual fields.

Blood culture, negative.

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[6] Spiller, quoted by Ayala, G.: Le trophoedème chronique et le système [illegible] Encéphale **1**: 319, 1913.

[7] Ri[illegible] Trophedema (Meige), Policlinico (sez. med.) **31**: [illegible]) 1924.

[8] Mi[illegible] Hereditary Edema: Milroy's Disease, J. A. M. A. **91**: [illegible] 1928.

[9] Ho[illegible] H.: Persistent Hereditary Edema of the Legs, wit[illegible] Milroy's Disease, Quart. J. Med. **1**: 312, 1907.

Roentgen examination of the legs: enlargement of soft parts; no changes in bones.

Roentgen examination of the chest, negative.

Wassermann reaction, negative.

Electrocardiographic examination: sinus arrhythmia, left axis deviation; occasional ventricular premature contractions.

Course.—On the fifth day following admission to the hospital, a biopsy was done, a piece of skin being removed from the left thigh for microscopic and bacteriologic study. A culture from the operative incision showed the presence of hemolytic streptococci which were difficult to grow and impossible to transplant.

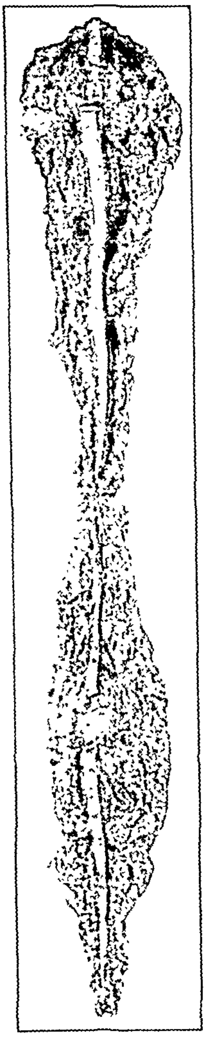

Fig. 4.— Specimen removed at Kondoleon operation.

On the twelfth day the patient suddenly had a chill with an elevation of temperature to 105 F. He complained of marked tenderness in the right leg, which was fiery red and much warmer than the left, in which the usual appearance persisted. Otherwise the physical examination at this time showed nothing of interest. A blood count showed 33,000 white cells with 90 per cent polymorphonuclear neutrophils.

Antistreptococcus serum given intracutaneously failed to produce local blanching; however, 100 cc. of this serum was given intravenously, and within twenty-four hours the temperature was normal, the local symptoms had practically disappeared and the white blood cells were 12,000.

Invariably, previous "acute attacks" had lasted for four days; but as to whether this apparently beneficial effect was a coincidence, the result of nonspecific protein administration or of other factors is uncertain.

Because of the low metabolic rate and obesity, thyroid extract was administered, but no improvement in the legs occurred. A Kondoleon operation was suggested, but the patient refused to give permission, and he was discharged to the outpatient department.

During the next two years the boy was seen from time to time, and definite progressive increase in the swelling of the legs, as well as increasing obesity, was noted (figs. 2 and 3).

Because of his economic status the purchase of suitable shoes and stockings became a serious problem. On account of difficulty in walking, an active occupation was impossible. As he was definitely mentally retarded, no sedentary position requiring ordinary mental capacity was obtainable. Finally the family and patient became desperate and requested that something be tried.

Dr. Mont Reid advised a Kondoleon operation in the hope of securing an anastomosis between the superficial and deep lymphatics of the leg. At the operation, which was performed on the right leg, a strip of skin, subcutaneous tissue and tensor fasciae latae was removed, the incisions starting at the anterior superior spine and extending to the ankle (fig. 4). The widest portion of skin in the specimen measured 12 mm. The incisions sloped outward and downward through very wet, "milky," subcutaneous fat and scar tissue, to the tensor fasciae latae in the thigh and to the deep fascia in the leg, the widest portions of these removed measuring 12 cm. A culture was taken from the incision, but no organisms were grown. Too brief a period has elapsed since operation to draw conclusions with regard to its success. Sistrunk[10] has reviewed the results of similar operations in his cases.

Pathologic Examination.—The first specimen to be examined was the small piece of skin removed from the patient's leg at biopsy in November, 1928. Sections were stained by the following methods: (1) van Gieson's acid fuchsin-picric acid, (2) hematoxylin-eosin, (3) Mallory's aniline blue, (4) Marchi's osmic acid, and (5) Verhoeff's elastic tissue stain. Microscopic examination (fig. 5) revealed a normal epidermis, directly beneath which there appeared to be a condensation of the superficial portion of the dermal papillary layer. With Mallory's aniline blue stain this portion of the dermis had a membranous appearance and was composed of fine collagen fibrils, which in some areas were undergoing hyalinization. No elastic tissue was found in this layer, and there seemed to be fewer capillaries than normal extending into the papillae. In the reticular layer, the heavy collagen fibers were somewhat spread apart by edematous fluid, but the edema was not nearly so marked here as in the deeper parts. The small groups of blood and lymph vessels, especially those of the subpapillary network, were surrounded by a considerable sprinkling of lymphocytes, which seemed to be more definitely related to capillaries and venules than to arterioles or larger vessels. Although the dermis was widened by the moderate amount of fluid present, there was also a definite increase in the number of collagen fibers, thus producing marked increase in the proportion of dermis to epidermis. The subcutaneous tissue was also much thicker than normal, being composed of large masses of edematous fatty tissue embedded in which were vessels and nerves. In some areas the stroma and fat cells were entirely absent, great pools of fluid being formed with no definite limiting boundaries (fig. 6). A few dilated lymphatics were seen, but much of the fluid occurred in spaces having no visible endothelial lining.

The second specimen to be studied consisted of a number of sections taken from various areas in the large piece of skin, subcutaneous tissue and tensor fasciae latae which was removed at operation (fig. 4). The same stains were used as on the preceding specimen. Microscopic examination revealed pathologic changes differing little from those in the biopsy sections just described. The epidermis was slightly thicker than in the earlier sections, but the papillary ridges were still well defined, and the membranous layer of collagen fibrils just beneath the epidermis was very sharply outlined. Although the edema of both the dermis and the subcutaneous tissues was considerably more marked than in the earlier sections, the active inflammatory changes, while still present, were in general much less marked. There were, however, a few venules in the subcutaneous areas which showed focal polymorphonuclear infiltration in their walls.

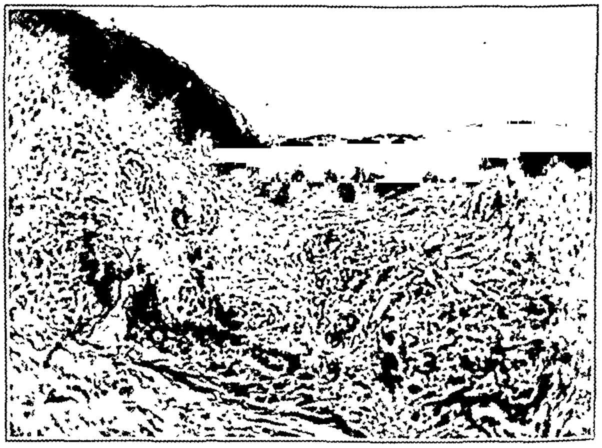

Fig. 5.—Section of epidermis and dermis showing condensation of superficial papillary layer and lymphocytic reaction in the reticular layer.

One small artery beneath the tensor fasciae latae showed very definite intimal sclerosis with narrowing of the lumen. The media of some of the arterioles in the sub[illegible]us areas seemed to be hypertrophied.

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[10] Sistrunk, W. E.: Further Experiences with the Kondoleon Operation for Elephantiasis, J. A. M. A. 71: 800 (Sept. 7) 1918.

Marchi's method revealed no lipoid material in the pools of fluid previously described. The material in these spaces was colorless by all methods employed, with the exception of a faint pink granular appearance when eosin was used.

COMMENT

In order to determine whether the changes described occur in conditions other than Milroy's disease, sections of skin were collected from other patients, particularly those having edema of known etiology. So far, only autopsy specimens have been available, but these have all been taken within a few hours after death. Whether or not the inflammatory and other vascular changes that were found in our patient are characteristic of Milroy's disease can be determined only by studying other persons having the same disease. That they are not pathognomonic is certain, because they have been found in other conditions. The pools of fluid apparently outside vessel walls have so far not been found in sections from other conditions, including marked edemas of traumatic and cardiovascular origin. Also, in no other sections has so marked condensation of the dermal papillary layer been found. In the sections of skin showing edema of cardiovascular, traumatic and local obstructive origin, the epidermis has appeared to be thinned out and stretched, with flattening of the epidermal and papillary ridges. This appearance has been notably absent in all the sections from our case of Milroy's disease.

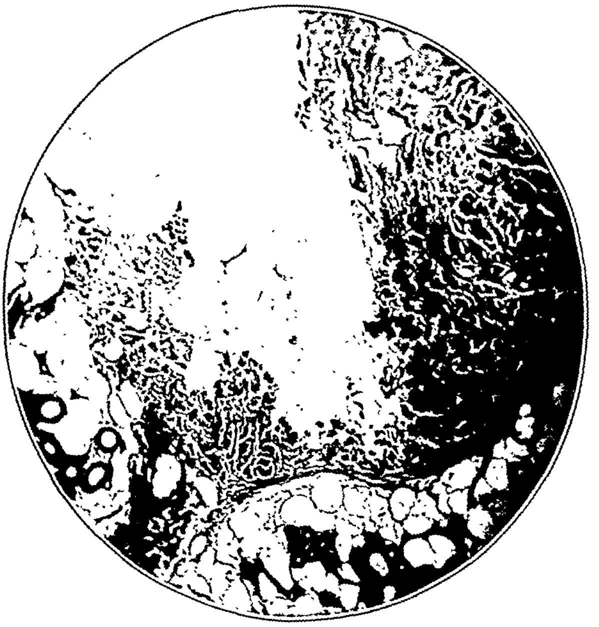
Fig. 6.—Section of subcutaneous tissue showing a large "pool" of fluid.

SUMMARY

1. A characteristic case of hereditary edema of the extremities has been studied for several years.
2. The pathologic alterations in the skin are described for the first time.

Cincinnati General Hospital.

The Goal of Science.—The aim of science has always been to find out the real facts, to avoid mere opinion and prejudice. By this aim and this method the scientific attitude is developed. It accepts the truth wherever it may lead, and places it above all doctrines and authorities.—Burnham, William H.: The Wholesome Personality, New York: D. Appleton and Co., 1932.

SUPPURATIVE PERICARDITIS

REPORT OF A CASE [*]

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CHICAGO

Suppuration within the pericardium is never primary. It may follow the occasional penetrating wound, as from a knife blade or a bullet;[1] it may appear as a metastatic abscess secondary to a general infection of the blood stream,[2] or, as most often happens, it may develop by direct lymphatic extension, generally from a suppurative focus within the mediastinum,[1] lung tissue or pleural space. Clinically, it is seen most commonly after pneumonia, and the pneumococcus is the prevailing organism.

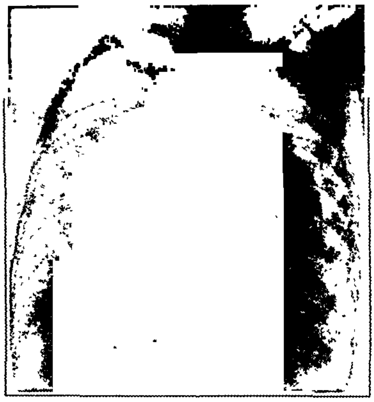
Fig. 1.—Appearance of chest immediately before surgical drainage of the pericardium.

The diagnosis in the early stage is not always easy. Clouded as they may be by the overshadowing observations of associated pathologic changes within the chest, the signs of a small accumulation of turbid fluid within the pericardial sac may be overlooked. As the amount of pus increases, however, and the sac becomes distended, the work of the heart becomes embarrassed and the clinical signs more distinct. The general picture of severe sepsis, the anxious pinched expression of the patient, the evidence of constant pain over the heart, the dyspnea, the cyanosis, the enlarged rounded area of cardiac dulness over which the heart tones are distant or, indeed, scarcely audible, together portray a clinical picture almost classic, leaving little to be added either by the aspirating needle or by the roentgenogram.

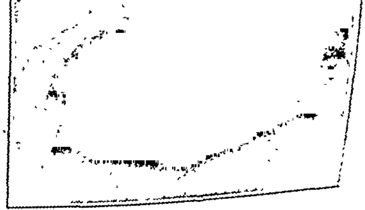
Fig. 2.—Appearance of chest three days after surgical drainage of the pericardium.

The prognosis varies with the cause but depends greatly on the treatment. Those cases which follow pneumonia are the most favorable, those secondary to a general sepsis the least. Left alone to follow the natural course, untreated cases are invariably fatal; with repeated aspiration, carried out not without considerable risk, 12 per cent perhaps may show recovery; by surgical drainage the mortality has been reduced to 50 per cent.

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[*] From the Children's Surgical Service, Cook County Hospital.
[1] Albrecht, P.: Beitr. z. klin. Chir. **141**: 193-214, 1927.
[2] Brooke, R.: Lancet **2**: 319 (Aug. 16) 1924.
[3] Loucks, H. H.: Suppurative Pericarditis, Arch. Surg. **18**: 852 (March) 1929.

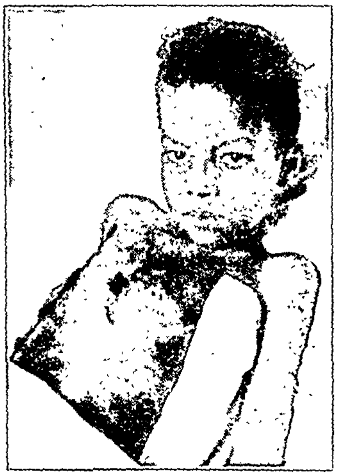

Fig. 3.—Patient three days after surgical drainage of the pericardium. Through the drainage tubes the cavity of the pericardium was irrigated with physiologic solution of sodium chloride.

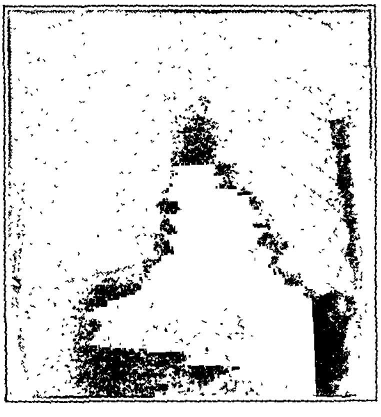

Fig. 4.—Normal appearance seven months after surgical drainage.

It is not necessary here to review the literature which has been gathered together since an infected pericardium was first successfully drained by Romero more than a hundred years ago, or to recount in detail the technic involved in the various methods of approach. Suffice it to say that during this period of time the feasibility of the principle of surgical drainage has become widely recognized and the basic plan of procedure generally accepted. The logical approach is, of course, from in front and is generally sufficient, yet the experience of Loucks teaches us that pocketing of pus may take place behind the heart, necessitating a second attack from behind. Whether one penetrates the sternum in the midline, as recommended by Shipley and Winslow,[4] or whether one enters the distended sac just to the left of its margin, as advocated by most physicians, matters not a great deal, so long as the operation can be quickly done and a sufficiently large opening made. Brooke is of the opinion that early drainage in cases secondary to acute osteomyelitis is most essential, even before the fluid contains frank pus. As to the matter of tube drainage and irrigation, opinions differ, but it is my personal belief that anchoring two soft rubber tubes to the margins of the opening and carefully irrigating the cavity at intervals with warm physiologic solution of sodium chloride not only is unharmful but greatly facilitates the rapid emptying of the accumulated pus. The suggestion of Dana,[5] who recently has written on the closed drainage of acute empyema cavities by substituting air for the pus evacuated, is very interesting. As applied to the case of suppurative pericarditis, this method might appear very attractive were it not for the positive danger involved in repeated needling so close to the heart.

REPORT OF CASE

H. L., aged 8, a Negro boy, admitted to the medical service at the Cook County Hospital, March 8, 1930, was acutely ill. The temperature was 101.2, the pulse 120 and respiration 138. The diagnosis made on examination was suspected bilateral pulmonary tuberculosis. A definite history could not be obtained. Over both sides of the chest, relative dulness was elicited and bronchovesicular breathing was heard with many moist fine crepitant râles. The heart was essentially normal. The abdomen was somewhat distended, tympanitic and tender. A diagnosis of diffuse bronchopneumonia was made. A roentgenogram (fig. 1), March 10, revealed a large rounded cardiac shadow with relatively clear lung fields and led at once to the suspicion of pericarditis with effusion. During the following two days the heart tones became muffled and distant, and aspiration revealed the presence within the pericardium of thick yellow-green pus, containing the pneumococcus. March 19, the patient was transferred to the surgical service.

As the boy came to the operating table, he appeared extremely sick and was apparently in great pain. Dyspnea, cyanosis and a bulging precordium were the marked symptoms. Under local anesthesia, with the patient in the sitting position, a 4 inch incision was made just to the left of the sternal margin, and the cartilages of the fifth and sixth ribs were resected so as to expose the bulging pericardium between the border of the sternum and the main trunk of the internal mammary artery. A gush of pus, as from a hose, shot into the air, and within a few seconds a pint or more of pus covered the field. The incision was then enlarged, the fingers were introduced about the heart, and no pocketing was noted posteriorly. The ends of two soft rubber tubes were anchored to the margins of the wound, and through these the cavity was gently irrigated with warm saline solution. Relief was immediate, and the boy left the table much improved. The postoperative course was practically uneventful. Irrigation was continued at frequent intervals, the acute symptoms rapidly subsided, and the amount of discharge steadily decreased. At the end of six weeks, the wound was practically healed and the boy was allowed to go home. His clinical progress and the changes in the roentgen observations are illustrated in figures 1 to 6.

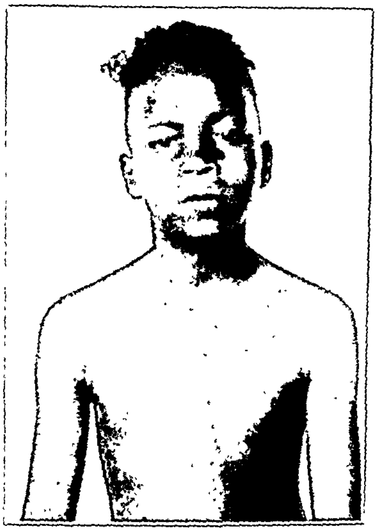

Fig. 5.—End-result one and one-half years after surgical drainage.

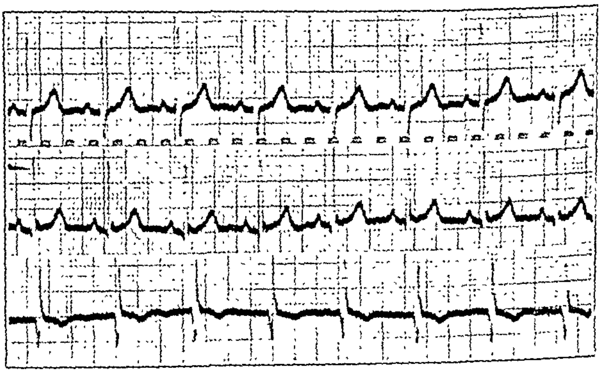

Fig. 6.—Electrocardiographic study by Dr. Clayton J. Lundy one and one-half years after surgical drainage of the pericardium.

Cardiac examination, July 22, 1931, by Dr. Clayton J. Lundy, showed a regular pulse rate of 82. There was a rather large

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4. Shipley, A. M., and Winslow, N.: Tr. Am. S. A. **45**: 286, 1927.
5. Dana, J. A.: The Treatment of Empyema by Aspiration and Air Replacement Without Drainage, J. A. M. A. **96**: 1453 (May 2) 1931.

visible pulsating area in the fourth and fifth interspaces at the site of operation, just left of the sternum. The left heart border was 1.5 cm. to the left of the nipple line, which was about 9 cm. left of the midsternal line. The right heart border was just to the right of the left sternal border. The heart sounds were clear. The intensity of the second aortic sound was about equal to that of the second pulmonic sound. The systolic blood pressure was 118 and the diastolic 76 mm. of mercury. The lungs were normal. When the position of the patient was shifted from his back to his left side, the left heart border shifted to the left about 2 cm. When he was placed on the right side, the right heart border seemed unchanged. This conformed to the electrocardiographic estimation of shifting of the electrical axis, which was plus 50 degrees when the patient was on his back, plus 80 when he was on his left side, and plus 53 when he was on his right side. The electrocardiogram taken July 22, in addition, showed a diphasic Q-R-S$_1$, notched Q-R-S$_2$ near the base line, and a slurred Q-R-S$_3$. There was no clinical or electrocardiographic evidence of cardiac damage, and the adhesions after pericardostomy had not interfered with normal shifting of the heart's position when the patient turned on his left side, although there was some limitation of rotation when the patient turned on his right side.

952 North Michigan Avenue.

ACUTE PYOGENIC INFECTION OF THE SPINAL EPIDURAL SPACE *

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AND
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Of the diseases involving the coverings of the spinal cord and the cord itself, acute pyogenic infection of the epidural space is comparatively infrequent. It is, however, a definite disease entity, and the histories, physical signs and laboratory observations of the various cases reported are strikingly similar. Acquaintance with the condition, making possible an early diagnosis, is of great importance to the patient; for, although the prognosis is quite poor, adequate drainage at the earliest possible date offers the best if not the only means of treatment.

If infection is known to be present in some other part of the body, the arrival at a diagnosis of the condition may be facilitated. But in cases in which this is not known to exist, diagnosis may be a difficult procedure. This is true especially in cases in which the body does not react in the usual way to an acute purulent process, or in which the infection is too early to be localized and not extensive enough to produce a well marked febrile state. As the cord symptoms are at first due only to mechanical pressure from without the dura, the early observations may be somewhat confusing and difficult to interpret. The end-result, of course, is a complete transverse lesion of the spinal cord.

Case 1.—V. M., a man, aged 25, had an attack of appendicitis eighteen months prior to his admission. An appendectomy was performed, and he was apparently convalescing nicely when a subphrenic abscess developed. He then had a septicemia, which was shown by positive blood cultures. The entire illness lasted four months, and several months before the onset of the present illness he was able to return to work. Two weeks before admission, he was seized with sharp pains in the right side of the chest, which were not relieved by strapping. Three days later he noticed numbness of both feet, which gradually extended up to his hips. This was accompanied by weakness of both legs, which resulted in complete paralysis within twelve hours. By this time the numbness extended well up the thorax, he was unable to void urine and had fecal incontinence.

Examination showed equal and regular pupils which reacted readily. The extra-ocular movements were normal. The ocular fundi showed considerable hyperemia. There was no facial weakness. The tongue protruded in the midline without tremor. There was some stiffness of the neck muscles. The biceps, triceps and supinator reflexes were normal. The abdominal musculature was rather tense and the abdomen distended. The umbilical reflexes were lost. There was a complete flaccid paralysis of both legs. Knee and ankle reflexes were absent, and plantar irritation caused no response. Sensation to pain was lost on either side to the level of the third thoracic segment, heat to the fourth segment and cold to the second. Loss of tactile sensibility extended up to the third segment.

Shortly after admission the temperature rose from 101.6 to 105. The leukocyte count was 5,000. A lumbar puncture was done which showed the presence of a complete subarachnoid block. The fluid was xanthochromatic and coagulated on standing. Roentgenograms of the spine showed normal alinement, contour and density of the vertebral bodies, with no change in the intervertebral spaces.

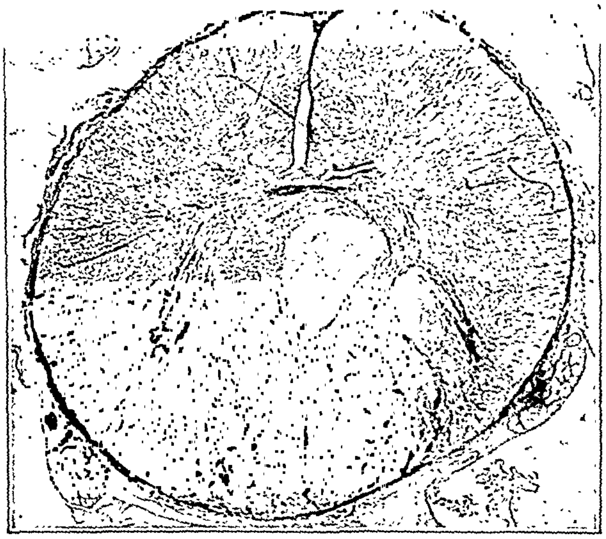

Fig. 1.—Section from lower thoracic cord. The posterior funiculi show considerable edema, and a small cystic area of degeneration is present posterior to the gray commissure. Hematoxylin-eosin stain; slightly reduced from a photomicrograph with a magnification of 50 diameters.

The history of the previous infection, the symptoms of pain followed by paralysis, and the marked degree of toxicity suggested the presence of an acute infection within the spinal canal, the lumbar puncture aiding in the diagnosis, and the upper limit determined by the sensory level. A laminectomy was done, centering over the fourth thoracic spine. Numerous abscesses, some large, others quite small, occupied the epidural space. The fat appeared red, and thick greenish pus oozed from its surface. The abscess formation extended upward to the second thoracic vertebra. More lamina were removed below, and the process was found to extend caudally to the first lumbar vertebra. The thick purulent exudate and necrotic fat were stripped from the surface of the dura, which appeared quite reddened. Although the greater portion of the pus was posterior to the dura, it was also seen to exude laterally along its surface in the lower thoracic region. The wound was irrigated thoroughly and the Carrel-Dakin method of treatment was used. Cultures of the pus showed Staphylococcus aureus.

The patient's condition did not improve following operation. About the fifth postoperative day, the wound began to show more purulent material than ever. The temperature continued in the characteristic septic course, and several times the patient was seized with severe chills. A blood culture was taken during one of these seizures, and a strain of Staphylococcus aureus was recovered from the blood stream. The patient's condition

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* From the Department of Surgery, University Hospital.

became progressively worse, and he died on the fifteenth day after operation. Permission for a postmortem examination was not granted; therefore we do not know whether the infection had extended inward beyond the dura. There were, however, *no symptoms of a true leptomeningitis.*

Case 2.—H. D., a girl, aged 15, fell while roller skating four weeks prior to admission. At the time, she noticed some pain in the lower part of the back. Several days later, a sharp pain developed in the back, which radiated down both legs. Three days later she began to have difficulty in moving her legs and three days following this she was completely paralyzed, had retention of urine, and noticed numbness of both legs and of the entire abdomen. When admitted, she complained that the pain was quite severe and was becoming worse.

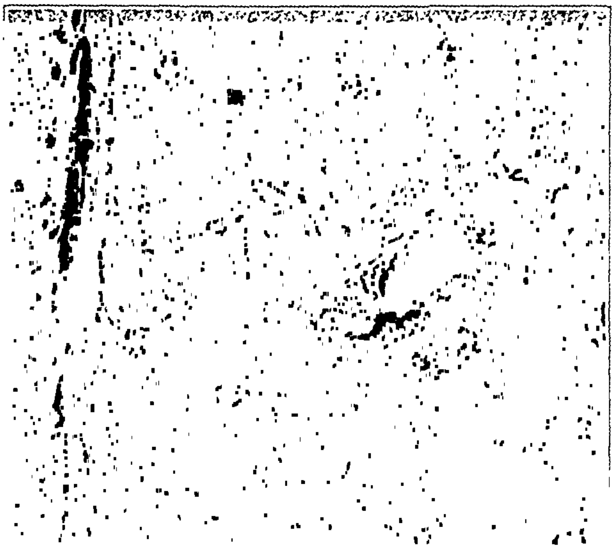


Fig. 2.—Small area of cord undergoing necrosis. The same area may be seen in the lower left hand corner of figure 1. Hematoxylin-eosin stain; slightly reduced from a photomicrograph with a magnification of 200 diameters.

Examination showed equal and regular pupils, which reacted readily. The extra-ocular movements were normal and there was no nystagmus. No evidence of facial weakness was present and there was no disturbance of sensation of the face. The tonsils were small and showed no evidence of infection, and the oral hygiene was good. Examination of the nose and ears gave no evidence of infection. The biceps, triceps and supinator reflexes were normal. There was complete loss of sensation below the level of the seventh thoracic segment. The umbilical reflexes were absent. There was a complete flaccid paralysis of both legs, with loss of the tendon reflexes. Plantar irritation gave no response. There was no cervical rigidity, and Kernig's sign was negative.

The temperature at the time of admission to the ward was 100.5, the pulse 110, and the respiratory rate 24. The leukocyte count was *30,000. Repeated dry taps were obtained* when lumbar punctures were attempted. Roentgenograms of the entire spine showed nothing abnormal.

A diagnosis was made of spinal epidural abscess in the region of the fifth thoracic vertebra. A laminectomy, centering over this area, was performed. A greenish white, purulent exudate oozed from the surface of the epidural fat. This was seen to extend upward as high as the fourth thoracic vertebra and to involve the remaining epidural tissue caudally, necessitating the removal of the laminae as far as the first lumbar vertebra. The thick purulent material was thoroughly removed and the remaining epidural tissue carefully stripped from the surface of the dura. A rather mild pachymeningitis was present. At the level of the ninth thoracic vertebra, pus was seen oozing from the anterior part of the canal. The dura was retracted laterally, and considerable pus escaped. Acriflavine packs were placed into the wound, which was allowed to remain wide open. Cultures of the pus showed Staphylococcus aureus.

Following operation, the patient's temperature continued elevated, but assumed a septic curve. Three days later, the acriflavine packing was removed and the wound appeared clean. On the eighth postoperative day the patient had a *chill, following which her temperature rose to 106.* Several similar chills followed, but blood cultures taken during these failed to show any growth. Her condition became progressively worse, and she died one week later.

At autopsy, considerable pus was found in the spinal canal from the seventh cervical to the first lumbar vertebra. From the ninth to the twelfth thoracic vertebra, the pus was present in the anterior as well as the posterior part of the canal. The dura was covered with a fibrinopurulent exudate and was greatly thickened throughout the entire thoracic region. When the dura was opened, the cord was found to be quite swollen, but no pus was present. The leptomeninges were matted together, thus completely obliterating the subarachnoid space. The cord was definitely softened, the softening being most marked in the lower thoracic region.

Microscopic examination of the cord at various levels showed extensive degeneration of the tracts most marked in the posterior columns in the lower thoracic segments. The amount of edema was striking. Immediately posterior to the central canal was a small cystic area, containing broken-down cord substance but no inflammatory cells (fig. 1). Other smaller areas of necrosis were present, in which were seen many newly formed vessels (fig. 2), and in the cord surrounding these areas were collections of gitter cells. In some portions of the posterior funiculi, there was a honeycomb appearance due to the marked edema (fig. 3). The nerve cells were badly degenerated, especially in the anterior horns (fig. 4).

Case 3.—H. W., a man, aged 30, in whom a furuncle on the neck developed three weeks prior to admission, was responding well to treatment when he began to have severe pain in the back. The pain was sharp and radiated upward to the midthoracic region and downward to the scrotum and thighs. The pain continued, and one week after its onset he was taken to a small hospital near his home, where a lumbar puncture was done, but no fluid was obtained. The following day the pain became more severe than ever, and on the succeeding day his legs became paralyzed and he was unable to void. The pain then subsided, and he noticed numbness of the legs and abdomen. Three days later, he was admitted to University Hospital. The temperature was 104.6, and the pulse rate 160.

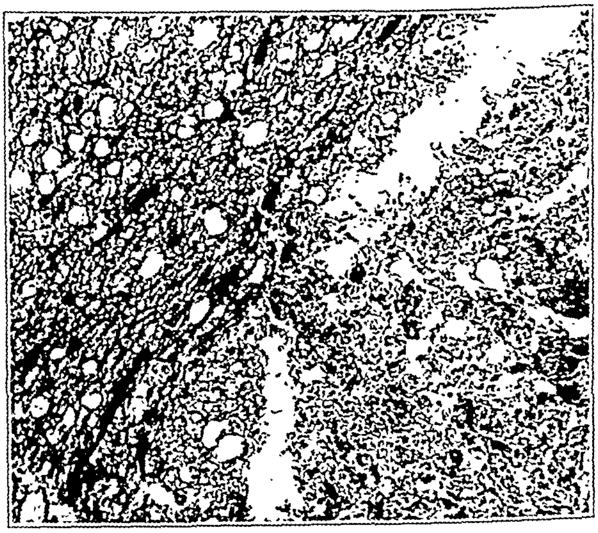


Fig. 3.—Portion of cord adjacent to small cystic area of degeneration, showing honeycomb appearance of posterior column due to marked edema; phosphotungstic acid hematoxylin. Slightly reduced from a photomicrograph with a magnification of 200 diameters.

Neurologic examination showed the right pupil to be larger than the left. Ophthalmoscopic examination revealed a neuroretinitis in each eye. There was no paralysis of the face or tongue. The tendon reflexes of the upper extremities were normal. The abdominal and cremasteric reflexes were absent. There was a flaccid type of paralysis of the legs, with loss of all reflexes. There was a sensory level extending to the seventh thoracic segment. Just above this level was a zone of hyperesthesia, about 2 cm. in width.

The urine contained many pus cells to the low power field. Blood examination showed a slight leukocytosis of 12,200. Roentgenograms of the spine demonstrated normal contour, alinement and density of the vertebrae. A lumbar puncture was not attempted.

A diagnosis of epidural abscess was made, and the patient was immediately prepared for operation. It was now four days since the onset of the paralysis, and the condition of the patient was quite grave; but it was believed that operation offered him his only hope. A laminectomy was performed, and the diagnosis was confirmed. An enormous amount of pus was present in the epidural space, producing considerable pressure on the dura. Cultures later showed Staphylococcus aureus. The infection extended from the fourth to the eleventh thoracic vertebra.

The postoperative period was more or less uneventful. The temperature continued elevated for the first week and then gradually became normal. Three weeks after operation the sensory level was at the tenth segment, but there was no change in the paralysis. His course has since remained stationary. We doubt whether movement will ever return. A retention catheter is necessary and urinary antiseptics are employed. The urine is remaining remarkably free from infection.

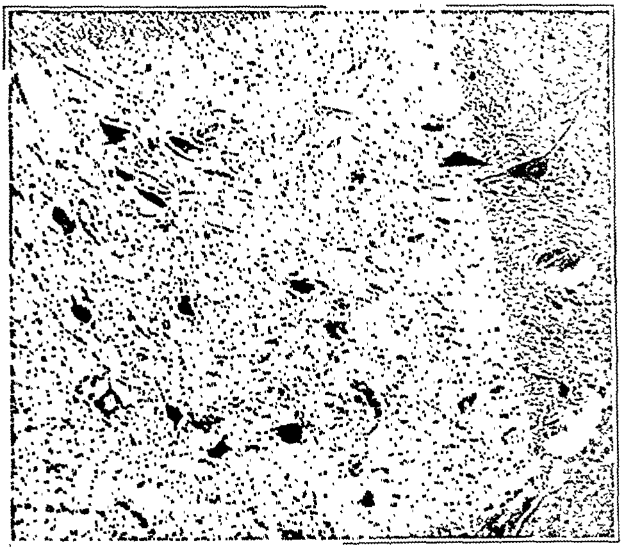
The relative infrequency of the disease is well demonstrated by the fact that Schmaltz[1] was able to collect [illegible] forty-three cases from the literature up to 19[illegible] Dandy[2] collected a series of twenty-five cases. Cases have since been reported by Hassin,[3] Veraguth and Schnyder,[4] Sittig,[5] MacDonald[6] and Wei Yu Lin.[7]

Dandy points out that the usual history of infection of the epidural space is acute severe pain in the back, along the course of the spinal nerves or in the legs, followed by paralysis of the lower extremities within a few days after the onset. This is very similar to the histories of our cases, although the paralysis in case 3 was a little slower in appearing. The pain is no doubt due to irritation of the posterior nerve roots. Elsberg[8] states that the symptoms of transverse myelitis are the result of a local interference with the circulation of the cord and a toxic softening of the cord tissue, rather than of mechanical pressure from without. This is shown quite well in our examinations of the cord in case 2. In the gross, the cord was greatly swollen and in some areas softened to such an extent that it was difficult to section. In these regions, no surface vessels were seen. Microscopic examination showed considerable destruction of both white and gray matter. The most extensive degeneration was in the posterior columns immediately underlying that portion of the dura which showed the greatest reaction to the infection. The effect on the anterior horn cells over so many segments accounts for the flaccid type of paralysis, which, on its appearance, aids greatly in arriving at a correct diagnosis.

That the infection is usually of a secondary nature is shown by Schmaltz's collection of cases. In Dandy's series, however, three of the cases were due to primary infection within the epidural space. One of our cases was undoubtedly of a metastatic nature, one was rather questionable, and in the other no evidence of infection elsewhere in the body could be found at autopsy.

Cultures of pus were made in seventeen of Schmaltz's cases, and in fifteen of these some form of staphylococcus was found. Staphylococcus aureus was the micro-organism isolated from the pus in each of our cases, and in case 1 it was recovered from the blood stream.

The conditions most likely to be confused with epidural infection are poliomyelitis, leptomeningitis, abscess of the spinal cord and tumor of the spinal cord. Poliomyelitis may be ruled out by the presence of a sensory level and of a subarachnoid block. Lumbar puncture, with examination of the fluid, is usually sufficient to eliminate the second possibility. As to abscess of the spinal cord, the simultaneous appearance of the sensory and motor symptoms certainly suggests the presence of an intramedullary lesion, while pain, appearing several days before the onset of the paralysis, is in favor of extradural involvement. A spastic and not a flaccid type of paralysis would be expected in the case of spinal cord tumor. The severe febrile state would also be absent. Of course, these points of differentiation are merely generalities, as the diagnosis of the localization and nature of lesions of the spinal cord is very often an extremely difficult matter. And aside from an academic standpoint, a mistaken diagnosis of abscess or tumor of the cord is of no great import, as immediate laminectomy, on the sudden appearance of paralysis, is certainly indicated.



[illegible] horn in lower thoracic region, showing degeneration of [illegible]. Nissl stain; slightly reduced from a photomicrograph with a magnification of 200 diameters

From the onset, the disease assumes the character of a profound toxemia. The only method of combating the infection is, perhaps, operation with adequate drainage of all the tissue involved. As the process is always quite extensive, it requires the removal of many laminae. The greatest involvement is in the midthoracic region, posterior to the spinal nerve roots. The infection in two of our cases, however, was seen to extend into the anterior part of the spinal canal.

Following operation, the treatment of the wound depends entirely on the method most favored by the

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surgeon. Needless to say, the prognosis is quite poor, regardless of how early a diagnosis is made and how soon thereafter a laminectomy is done. Very few recoveries have been reported. The cord changes lead one to believe that unless operation is employed early in the course of the disease, the damage to the cord will be irreparable. This is only too well illustrated by our last case.

University of Michigan Medical School.

ELLIPTIC HUMAN ERYTHROCYTES *

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SAN FRANCISCO

Abnormal shapes of human erythrocytes are generally associated with an anemia indicative of some disease affecting the hematopoietic system. In a few rare instances, elliptic and rod-shaped red blood cells have been noted in perfectly normal individuals with otherwise normal conditions in the blood. Such oval cells have received scant attention in the literature. The first report by Dresbach[1] appeared in 1904. Up to 1929, only seven references[2] to the condition were available. These included only fifteen cases, but the hereditary transmission of these bizarre erythrocyte forms was appreciated. In 1929, twelve cases were reported[3] occurring in three generations in a family with sixteen members. In 1931, Lawrence[4] reported four additional cases, and two as yet unpublished cases have recently been studied.[5]

As only thirty-three instances of elliptic erythrocytes have been noted in mankind as a presumably nonpathogenic observation, the present study of fourteen additional cases, all in three generations of one family, may add materially to the knowledge of this most interesting subject, particularly as the condition is commonly confused with sickle-cell anemia.

REPORT OF CASES

Tony P. was the first member in his family to come under observation. He had a high percentage of elliptic erythrocytes, and, as he remained in the hospital over one year and afforded abundant opportunity for study, his case will be described in some detail.

Tony P., a man, aged 39, an Italian laborer, entered the hospital on account of a generalized psoriasis. His father and mother were born in Palermo, Italy, and remained there. They were always well and strong. His father died of malaria, at the age of 48. His mother died at the age of 59, following a fall from a window. Three brothers and two sisters are living and well; one brother died, at the age of 35, of double pneumonia. The patient had come to the United States at the age of 5 years, and he did not remember any illnesses except a fissure in the anus, which had been operated on three years previously. For several years he had had attacks of indigestion and of pain in the right side. He had had psoriasis for ten years, which had spread from the extremities to the trunk, neck and scalp. Physical examination was essentially negative except for the generalized skin lesion and some tenderness in the right upper quadrant of the abdomen.

The urine, the stool, the blood count and the gastric analysis were not remarkable. The blood Wassermann reaction was negative. A basal metabolism test was plus 21. A gastro-intestinal x-ray series showed a deformity of the duodenal cap, and a gallbladder visualization showed a poor concentration of the dye in the gallbladder. Both biliary tract disease and duodenal ulcer were suspected, and both were subsequently demonstrated at operation.

While doing the routine blood count, the laboratory technician[6] noted elongated cell forms in the red cell counting chamber, and further studies of the blood were made. The bleeding time was four minutes. The coagulation time was two and one-half minutes. There were 0.8 per cent reticulocytes and 443,260 platelets per cubic millimeter of blood. The icteric index was 6, and a fragility test of the red corpuscles showed complete hemolysis at 0.33 per cent salt solution. The rate of sedimentation of the erythrocytes was also normal. Differential counts, as shown in the accompanying table, were done on wet and on dry preparations (fig. 1) of the patient's blood in order to determine the percentage of oval forms. Sealed wet preparations kept for two days and observed frequently showed no changes in the shape of the cells. A bone marrow showed the morphologic structure of the cells to be no different from that usually seen.[7]

Blood Studies of the Tony P. Family

No.	Name	Age	Marital Status	Red Blood Cells	Hemo-Globin, per Cent	Percentage of Elliptic Cells		Type
						Wet	Dry	
1	Tony P.	39	Married	4,790,000	92	92	70	II.
2	Madeline	16	Single	4,130,000	81	96	75	II
3	John	18	Single	4,500,000	90	0	0	II
4	Joseph	14	Single	4,570,000	85	98	68	II
5	Louis	10	Single	4,400,000	84	94	76	II
6	Phillip P.	42	Married	4,420,000	85	0	0	II
7	Winifred	15	Single	4,730,000	85	0	0	II
8	Josephine	16	Single	4,500,000	85	0	0	II
9	Lena	20	Married	3,980,000	77	0	0	II
10	John	19	Single	4,760,000	85	0	0	II
11	Paul P.	53	Married	4,500,000	90	75	20	II
12	Angelo	22	Single	5,400,000	107	0	0	I
13	Josephine	16	Single	4,600,000	85	94	50	III
14	Charles	24	Single	5,000,000	98	0	0	II
15	Lena	25	Married	4,500,000	92	0	0	III
16	Angelina	8	Single	4,360,000	84	0	0	II
18	Anthony	10	Single	4,280,000	84	0	0	II
17	Paul	14	Single	4,850,000	88	0	0	I
20	Joe	26	Married	5,000,000	95	84	32	II
19	Paul	3	Single	4,200,000	80	88	83	II
21	John	28	Single	4,820,000	100	0	0	II
22	Phillip	20	Single	4,860,000	95	0	0	II
23	Rose	18	Single	4,810,000	85	83	52	II
24	Anna C.	51	Married	4,810,000	88	60	30	II
25	Mary	16	Single	4,230,000	80	0	0	II
26	Josephine	18	Single	4,620,000	85	0	0	IV
27	Anthony	13	Single	4,500,000	85	0	0	IV
28	Mike	9	Single	4,200,000	82	0	0	IV
29	James	25	Single	5,000,000	90	62	14	IV
30	Paul	22	Married	4,560,000	85	90	31	II
31	John	28	Married	4,730,000	88	60	15	IV
32	Mickey	10	Single	4,370,000	85	2	Rare	IV
33	Anna	4	Single	4,460,000	84	0	0	IV
34	Steve	35	Married	4,500,000	90	0	0	IV
35	Gloria	19 mo.	Single	4,300,000	70	0	0	IV
36	Raymond	5 mo.	Single	3,390,000	56	0	0	IV
37	Dora	4	Single	4,300,000	85	0	0	IV
38	Frank P.	35	Married	4,500,000	98	0	0	IV
39	Rose	5	Single	4,390,000	84	0	0	IV
40	Lena	3	Single	4,480,000	85	0	0	IV
41	Tony	9	Single	4,800,000	88	0	0	IV

The patient's son proved to have the same unusual oval erythrocytes in both wet (fig. 2) and dry preparations of his blood, and it was decided to investigate all the members of the family as far as possible.

The relationship of the patient's family and the incidence and transmission of the unusual morphologic appearance of the red blood cells are shown in figure 3. Of the patient's living relatives, one married brother resides in New York and one married sister in Buenos Aires, so that their families could not be studied. Thirty-seven descendants of his parents are included in the family tree, and four descendants of his mother's sister. Three of four members of the first generation show unusual erythrocyte forms; nine of twenty-five of the second generation, and two of eight of the third. Of the fourteen positive cases, four were in females and ten in males.

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* From the Stanford University Medical School Service at the San Francisco Laguna Honda Home.

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[5] Terry, M. C.: To be published.

[6] I am indebted to Miss Marian McDaniels for all the technical work which has made this report possible.

[7] I am indebted to Dr. R. B. Chandler for puncturing the sternum and to Dr. H. A. Wyckoff for his report on his study of the bone marrow.

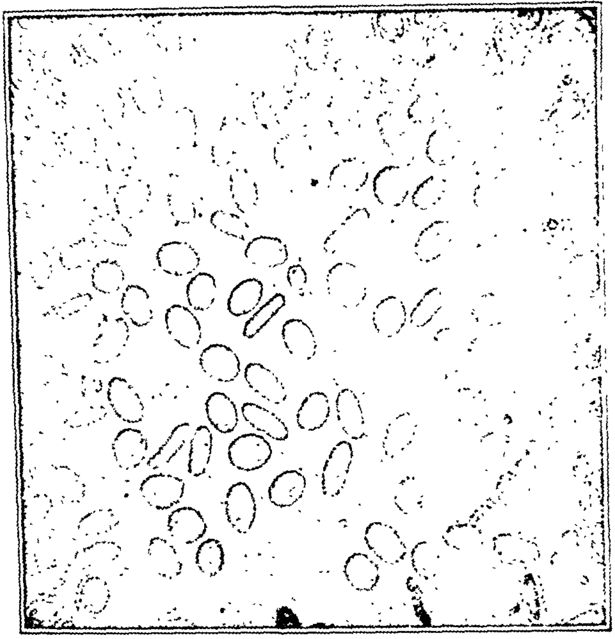

Fig. 1.—Elliptic erythrocytes seen on dry film in examination of blood of Tony P.

The changes in the blood are presented in the accompanying table. All the red blood cell counts, the hemoglobin estimations, the differential red cell counts and the blood typing were done by one technician, either at the hospital or, as in most instances, at the patient's home. All the subjects examined were in good health except Lena P., who was apparently pregnant and showed a slight anemia, baby Gloria C., who was convalescing from diphtheria, baby Raymond C., who had just left the hospital with anemia of unknown cause, and Dora C., who had whooping cough. It is worthy of note that none of the positive cases showed any definite anemia and that they occured in blood groups II, III and IV. There were only two instances of group I in the forty-one cases typed. An attempt was made to differentiate the abnormal red cell forms from the round ones in both the fresh and the dry preparations by microscopic observation. As the difference between a perfectly round cell and a very slightly oval one is impossible to detect accurately without measuring all the cells,[5] the percentages of normal and of abnormal forms present are but rough estimates, although based on repeated counts. The differentiation between an oval and a rod-shaped cell presented the same difficulties, as all intermediate forms were noted. A few truly rod-shaped and filiform cells were observed in nearly all the cases. In several instances the differential counts on the wet preparations were repeated the next day and proved to be essentially the same. The difference in the frequency of abnormal cell forms in the wet and the dry preparations has not been stressed previously, and the apparent increase of normal forms in the dry smears may be real or may be due to an alteration of the shape of the cell by the process of fixation, or, possibly, to the fact that the shifting positions of the floating cells in wet preparations make a slight ellipticity more apparent.

HEREDITARY ASPECTS

Since Dresbach's[1] original observation in 1904, the hereditary character of elliptic human red corpuscles has been suspected, and it is now firmly established. It has been demonstrated in only three successive generations of one family, although it is probable that it must have occurred in one or the other of the parents of Tony P., which would establish its incidence in at least four generations. His family demonstrates that the condition may be transmitted by either the male or the female, but it seems likely that it must be present in a parent in order to be transmitted to the offspring. This is strongly suggested by the fact that one brother, one niece and one nephew of Tony P. who had normal red cells had an aggregate of nine children all having normal cells. Also, all members of the family with abnormally shaped erythrocytes transmitted this characteristic to one or more of their offspring. Direct transmission is then common, while indirect transmission has not been proved.

Under such circumstances it is difficult to see why the condition is so rare. It is likely that it is often overlooked. Whether or not it is definitely transmitted according to the mendelian law cannot be stated, when but two family trees have been studied, each representing only three generations. However, from this very limited analysis it is strongly suggested that the trait of elliptic red cells is transmitted as a simple mendelian dominant. This cannot be settled until other large families are studied throughout several generations. Although there are as yet only eight individuals available for study in the most recent generation of the Tony P. family, two of whom show abnormal red cells, there are great potentialities for a far larger number. The data are as yet insufficient to determine whether successive generations show a decreasing percentage of abnormally formed cells or whether the degree of the ellipticity of the cells is diminishing. It would be helpful to study the branches of the family in New York and in Buenos Aires.

Elliptic erythrocytes are not limited to any race, in contradistinction to the generally accepted fact that sickle-cell anemia occurs only in individuals with Negro blood. Oval red corpuscles have occurred in Americans of Dutch, Italian and Scotch-Irish descent; in Germans, Italians, Russian Jews, American Negroes, and in an Austrian mulatto. The condition has not been reported in the oriental or South Sea races.

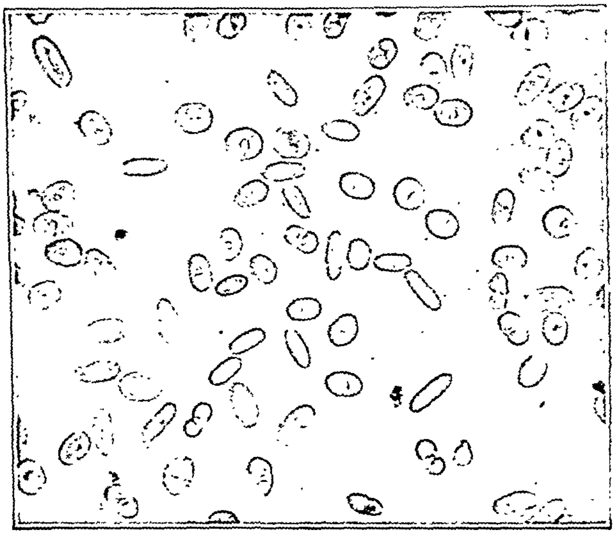

Fig. 2.—Elliptic erythrocytes seen on wet preparation in examination of blood of son of Tony P.

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[5] A separate report will be made on the index of ellipticity of the red cells.

RELATIONSHIP TO ANEMIA

Recent reports[9] suggest a relationship between elliptic erythrocytes and anemia. There does not seem to be any sound basis on which to assume any such relationship. With the exception of Warren and Adam's family, including twelve positive cases of oval red cells, only five cases of anemia have occurred in the thirty-five remaining cases, and in four of these there were other causes for the anemia (gallbladder disease, with sepsis, menorrhagia, syphilis, diabetes and tuberculosis). The fifth case (Lawrence,[4] case 2) was that of an old Jewish laborer with 3,950,000 red corpuscles and 45 per cent hemoglobin. No etiologic diagnosis is recorded.

In the family of twelve individuals, some of the red cell counts are certainly low,[3] but in only two instances, except for the original patient, are the hemoglobin estimations (Sahli) below 83 per cent. As in all the other blood examinations suggesting anemia, the color index is well over 1; it seems probable that a further check on the red cell estimations might show them more compatible with the hemoglobin readings and, consequently, normal. No clinical investigations were made on the two individuals with both low red blood cell counts and low hemoglobin determinations, so that there may well have been adequate causes for the anemia. The original patient was a young woman of the type in whom quite marked anemias of unknown etiology not infrequently occur, and it seems probable that the unusual morphologic appearance of her red corpuscles is not related to the anemia.

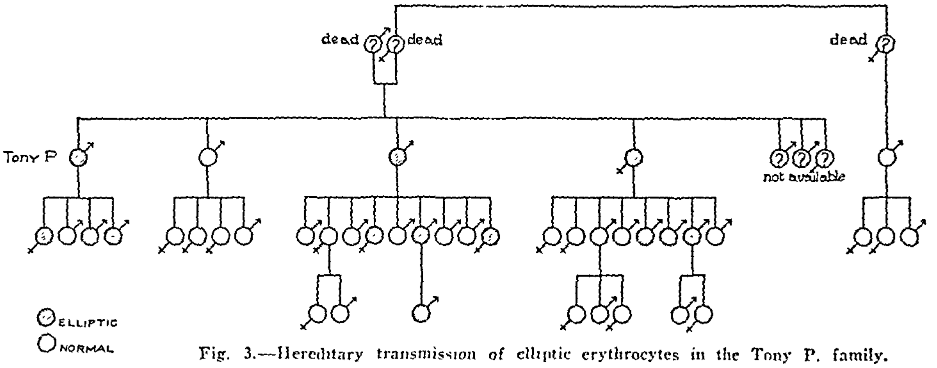

Fig. 3.—Hereditary transmission of elliptic erythrocytes in the Tony P. family.

Because of the bizarre forms of the erythrocytes, the blood picture in cases of elliptic red cells has been confused with that of sickle cell anemia, and it has recently been suggested that a relationship between the two conditions should be considered.[3] However, they are readily differentiated, both on clinical grounds and by the changes in the blood. The two conditions are hereditary, but here their similarity ceases. In contradistinction to the benign condition of elliptic erythrocytes, the disease of sickle-cell anemia has the following characteristics: It occurs only in Negroes; it is associated with anemia and with ulcers on the legs, and the sickle form of the red cells is progressively increased on standing in sealed wet preparations. Also, the typical sickle and crescentic cells are common in cases of sickle-cell anemia, while the rest of the red corpuscles are usually round. This is in sharp contrast to the picture in which elliptic cells are seen; here there are a series of transitional forms from the round red cells to such extremely elliptic forms that they may be designated as rod shaped. Only an occasional bent or sickle form appears, and even in these the ends of the cells seem rounded rather than pointed. Although a few individual cells may seem quite similar in the two conditions, morphologically the complete blood pictures are not to be confused, particularly when it is noted that in one "sickling" typically occurs and in the other it typically does not.

On the whole there does not seem to be sufficient evidence to associate oval red cells with any form of anemia or to look on the condition otherwise than as rare and curious, without any untoward effect on human health.

HEMATOLOGY

Human oval red corpuscles are biconcave ellipsoids which maintain a constant form under most conditions. They are quite similar to the erythrocytes of the camel as described by Loo,[10] which are normally ellipsoid although not constantly biconcave. The human cell may vary in size from one with a slightly narrower width and a slightly greater length than the diameter of a normal round cell to a rodlike cell with a width of 3 microns and a length of 13 microns. When human oval red cells are repeatedly washed with isotonic salt solution, or stand in a sealed wet preparation at room temperature for longer than seventy-two hours, or have pressure applied to them, many of them assume a circular or a spherical form.[5] Although their incidence in human blood is never 100 per cent, it is characteristic that the proportion of nondiscoid forms remains constant under normal conditions and never increases on standing, as in sickle-cell anemia. Repeated differential counts on the same patients over long periods of time are essentially the same. The ellipticity is not altered by changes in incubator temperature,[11] by single washings of salt solution, by the addition of normal blood serum after the cells have been washed, or by hypertonic salt solution. In hypotonic salt solution some of the cells appear to become circular before hemolysis occurs.[12] Terry has noted oval red cells in the heart's blood at autopsy and in the serum expressed from blood clot, and Huck and Bigalow identified th patient's oval cells in the recipient of a blood transfusi when their patient was the donor. Washed, normal shaped human erythrocytes remain unaltered wh introduced into the serum of a person whose who blood contains a large percentage of elliptic red co puscles.

Considerable interest has centered about the microscopic examination of the bone marrow in order to determine whether the elliptic cell forms could be identified before the corpuscles entered the blood stream. The sternum has been punctured in three cases for this purpose, nothing unusual being noted; so it seems evident that the bone marrow appears normal in individuals whose blood contains oval erythrocytes.

There is no evidence of increased blood cell hemolysis as the serum bilirubin determinations are normal, and fragility tests show that the resistance of the oval red cells to salt solution is normal. Reticulocyte counts,

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[9] Hunter and Adams (footnote 3). Lawrence (footnote 4).

[10] Loo, C. T.: Observations on Ellipsoid Erythrocytes: I. The Blood of Camelus Bactriens, Chinese J. Physiol. 3: 325 (Oct.) 1929.

[11] Lawrence (footnote 2).

[12] Bernhardt (footnote 2).

RELATIONSHIP TO ANEMIA

Recent reports[9] suggest a relationship between elliptic erythrocytes and anemia. There does not seem to be any sound basis on which to assume any such relationship. With the exception of Warren and Adam's family, including twelve positive cases of oval red cells, only five cases of anemia have occurred in the thirty-five remaining cases, and in four of these there were other causes for the anemia (gallbladder disease, with sepsis, menorrhagia, syphilis, diabetes and tuberculosis). The fifth case (Lawrence,[4] case 2) was that of an old Jewish laborer with 3,950,000 red corpuscles and 45 per cent hemoglobin. No etiologic diagnosis is recorded.

In the family of twelve individuals, some of the red cell counts are certainly low,[3] but in only two instances, except for the original patient, are the hemoglobin estimations (Sahli) below 83 per cent. As in all the other blood examinations suggesting anemia, the color index is well over 1; it seems probable that a further check on the red cell estimations might show them more compatible with the hemoglobin readings and, consequently, normal. No clinical investigations were made on the two individuals with both low red blood cell counts and low hemoglobin determinations, so that there may well have been adequate causes for the anemia.

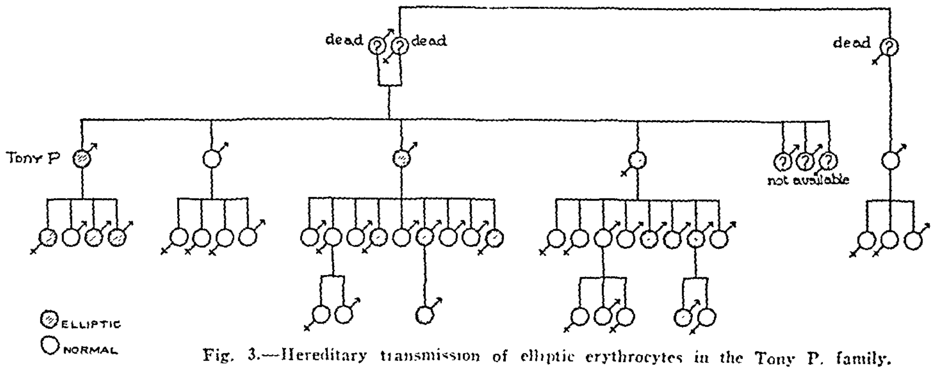

Fig. 3.—Hereditary transmission of elliptic erythrocytes in the Tony P. family.

The original patient was a young woman of the type in whom quite marked anemias of unknown etiology not infrequently occur, and it seems probable that the unusual morphologic appearance of her red corpuscles is not related to the anemia.

Because of the bizarre forms of the erythrocytes, the blood picture in cases of elliptic red cells has been confused with that of sickle cell anemia, and it has recently been suggested that a relationship between the two conditions should be considered.[4] However, they are readily differentiated, both on clinical grounds and by the changes in the blood. The two conditions are hereditary, but here their similarity ceases. In contradistinction to the benign condition of elliptic erythrocytes, the disease of sickle-cell anemia has the following characteristics: It occurs only in Negroes; it is associated with anemia and with ulcers on the legs, and the sickle form of the red cells is progressively increased on standing in sealed wet preparations. Also, the typical sickle and crescentic cells are common in cases of sickle-cell anemia, while the rest of the red corpuscles are usually round. This is in sharp contrast to the picture in which elliptic cells are seen; here there are a series of transitional forms from the round red cells to such extremely elliptic forms that they may be designated as rod shaped. Only an occasional bent or sickle form appears, and even in these the ends of the cells seem rounded rather than pointed. Although a few individual cells may seem quite similar in the two conditions, morphologically the complete blood pictures are not to be confused, particularly when it is noted that in one "sickling" typically occurs and in the other it typically does not.

On the whole there does not seem to be sufficient evidence to associate oval red cells with any form of anemia or to look on the condition otherwise than as rare and curious, without any untoward effect on human health.

HEMATOLOGY

Human oval red corpuscles are biconcave ellipsoids which maintain a constant form under most conditions. They are quite similar to the erythrocytes of the camel as described by Loo,[10] which are normally ellipsoid although not constantly biconcave. The human cell may vary in size from one with a slightly narrower width and a slightly greater length than the diameter of a normal round cell to a rodlike cell with a width of 3 microns and a length of 13 microns. When human oval red cells are repeatedly washed with isotonic salt solution, or stand in a sealed wet preparation at room temperature for longer than seventy-two hours, or have pressure applied to them, many of them assume a circular or a spherical form.[5] Although their incidence in human blood is never 100 per cent, it is characteristic that the proportion of nondiscoid forms remains constant under normal conditions and never increases on standing, as in sickle-cell anemia. Repeated differential counts on the same patients over long periods of time are essentially the same. The ellipticity is not altered by changes in incubator temperature,[11] by single washings of salt solution, by the addition of normal blood serum after the cells have been washed, or by hypertonic salt solution. In hypotonic salt solution some of the cells appear to become circular before hemolysis occurs.[12] Terry has noted oval red cells in the heart's blood at autopsy and in the serum expressed from a blood clot, and Huck and Bigalow identified their patient's oval cells in the recipient of a blood transfusion when their patient was the donor. Washed, normally shaped human erythrocytes remain unaltered when introduced into the serum of a person whose whole blood contains a large percentage of elliptic red corpuscles.

Considerable interest has centered about the microscopic examination of the bone marrow in order to determine whether the elliptic cell forms could be identified before the corpuscles entered the blood stream. The sternum has been punctured in three cases for this purpose, nothing unusual being noted; so it seems evident that the bone marrow appears normal in individuals whose blood contains oval erythrocytes.

There is no evidence of increased blood cell hemolysis as the serum bilirubin determinations are normal, and fragility tests show that the resistance of the oval red cells to salt solution is normal. Reticulocyte counts, platelet counts, bleeding time, clotting time, and rate of sedimentation are likewise normal. When the blood is typed according to the four recognized groups, as shown in Tony P.'s family there is nothing to suggest that the type of blood has any influence on the ellipticity of the erythrocytes. Studies of the white blood corpuscles show that they are normal.

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[9] Hunter and Adams (footnote 3). Lawrence (footnote 4).

[10] Loo, C. T.: Observations on Ellipsoid Erythrocytes: I. The Blood of Camelus Bactriens, Chinese J. Physiol. 3: 325 (Oct.) 1929.

[11] Lawrence (footnote 2).

[12] Bernhardt (footnote 2).

SUMMARY

1. Up to the present time, cases presenting human elliptic erythrocytes have been very rarely reported. It seems probable that they are more common than the meager literature indicates.

2. The hereditary transmission of such unusual red cell forms is emphasized by a report of a family including forty-one members in three generations, fourteen of whom show this bizarre structure in the blood. The transmission is probably by a simple mendelian dominant.

3. Although this condition has been associated with secondary anemia and with sickle-cell anemia, there is insufficient evidence to justify any such relationship.

4. Aside from the unusual erythrocyte forms, there is nothing else remarkable in studies of the blood or of the bone marrow.

5. Elliptic human erythrocytes represent a departure from the round forms usually found and are not in themselves indicative of any disease, but are an inherited characteristic.

Shreve Building.

RHEUMATOID (INFECTIOUS) ARTHRITIS AND ACUTE RHEUMATIC FEVER

THE DIFFERENTIAL DIAGNOSIS *

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Acute rheumatic fever and rheumatoid (infectious) arthritis are often indistinguishable clinically,[1] particularly at the onset. They may both start acutely with an infection of the upper respiratory tract or with epistaxis. A moderately high temperature, chilliness, perspiration, prostration, spreading and transitory involvement of joints, acutely inflamed joints, leukocytosis and anemia are seen in the two conditions. Furthermore, the spleen and lymph nodes may be enlarged in each. Even the subcutaneous nodule,[2] hitherto considered to be one of the most characteristic phenomena of acute rheumatic fever, is definitely observed in rheumatoid (infectious) arthritis and its incidence[3] reported with increasing frequency by those who search for it. The sedimentation rate, too, no longer serves as a distinction, for the two conditions have been found to present increased rates of sedimentation of the red blood cells.[4]

Although in recent years numerous pathologic, bacteriologic and immunologic investigations[5] have increased our knowledge of the two diseases, they have perhaps created more difficulty in their differentiation. The observations have been so similar that the two diseases have been considered either manifestations of the same process,[6] or a strong relationship between the two has been considered. It is not our intention to deny or affirm these views; our work shows that in rheumatoid (infectious) arthritis the heart is minimally involved, whereas in acute rheumatic fever it is maximally involved.

For the last eighteen months an electrocardiographic study has been made on hospital patients with acute arthritis. There were seventeen patients discharged with the diagnosis of rheumatoid (infectious) arthritis, and sixty-three patients discharged with the diagnosis of acute rheumatic fever. In the rheumatoid (infectious) arthritis group there were nine males and eight females. The average age was 36 years; the range was from 13 to 53 years. The average hospital stay was fifty-three days. In the acute rheumatic fever group there were thirty-six males and twenty-seven females. The average age was 26 years, the youngest 13 years and the oldest 56 years. The average hospital stay was forty-four days.

Summary of Observations in Eighty Cases

	Rheumatoid (Infectious) Arthritis	Acute Rheumatic Fever
Cases	17	63
Average age	36 yrs.	26 yrs.
Males	9	36
Females	8	27
Average hospital stay	53 days	44 days
Tachycardia	35.3%	68.3%
[illegible]	23.5%	20.8%
[illegible]	29.4%	22.4%
[illegible]	0	9.6%
Auricular premature beats	0	9.6%
Ventricular premature beats	0	4.8%
Nodal rhythm	0	1.6%
Nodal tachycardia	0	1.6%
Inteference sinus and auriculoventricular nodes	0	3.2%
Auricular fibrillation	0	3.2%
Auricular flutter	0	3.2%
P-R 0.20 second	5.9%	12.8%
P-R over 0.20 second	11.8%	32 8%
Dropped beats	0	4 8%
R-S-T changes	0	84 8%
T wave inversions	0	40 0%
T_3 changes	0	8.0%
Change voltage Q-R-S	0	14.3%
Q-R-S changes	0	6.4%
Large Q_3	0	9.6%
R. A. D.	0	3.2%
L. A. D.	0	11.2%
P wave changes	6.7%	12.8%

The electrocardiograms were taken daily from the day of admission to the day of discharge.[7] The accompanying table summarizes our observations. The rheumatoid (infectious) arthritis changes can be reviewed quickly as the electrocardiographic observations were meager (figs. 1 and 2). There were six cases with tachycardia, i. e., rates above 100 per minute. Not once, however, was the rate above 120 per minute. Bradycardia, i. e., a heart rate below 60 per minute, was observed four times. A sinus arrhythmia was seen in five individuals. The auriculoventricular conduction time (P-R interval) increased from 0.16 to 0.20 second in one man, and to 0.21 second in another patient. In a third, the figure was unvaryingly 0.21 second, so that it is doubtful whether this faulty conduction may be ascribed to his disease.

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* From the Cardiographic Department and the Service of Dr. Leo Kessel, the Mount Sinai Hospital.

[1] Cecil, R. L.; Nicholls, E. E., and Stainsby, W. J.: The Etiology of Rheumatoid Arthritis, Am. J. M. Sc. **181**: 12 (Jan.) 1931. Garrod, A. E., in Allbutt, T. C., and Rolleston, H. D.: A System of Medicine, New York, Macmillan Company **3**: 3, 1910. McCrae, Thomas, in Osler, William; and McCrae, Thomas: Modern Medicine, Philadelphia, Lea and Febiger **3**: 894, 1915.

[2] Coombs, C. F.: Rheumatic Heart Disease, New York, William Wood & Co., 1924, p. 6.

[3] Garrod (footnote 1). Coates, V.: Tissue Reaction in Disorders of the Rheumatic Group: with Particular Reference to Subcutaneous Nodules, Proc. Roy. Soc. Med. (Sect. Balneol. & Climatol.) **23**: 13 (March) 1930. Dawson, M. H., and Boots, R. H.: Subcutaneous Nodules in Rheumatoid (Chronic Infectious) Arthritis, J. A. M. A. **95**: 1894 (Dec. 20) 1930. Coates, V., and Coombs, C. F.: Rheumatic Nodule, Arch. Dis. Childhood **1**: 183 (Aug.) 1926. Dawson, M. H.; Sia, R. H. P., and Boots, R. H.: The Differential Diagnosis of Rheumatoid and Osteoarthritis: The Sedimentation Reaction and Its Value, J. Lab. & Clin. Med. **15**: 1065 (Aug.) 1930.

[4] Dawson, Sia and Boots (footnote 3).

[5] Cecil, Nicholls and Stainsby (footnote 1); Bacteriology of the Blood and Joints in Chronic Infectious Arthritis, Arch. Int. Med. **43**: 571 (May) 1929; Bacteriology of the Blood and Joints in Rheumatic Fever, J. Exper. Med. **50**: 617 (Nov.) 1929.

[6] Coates (footnote 3). Dawson and Boots (footnote 3). Hawthorne, C. O.: Rheumatism, Rheumatoid Arthritis and Subcutaneous Nodules, London, J. and A. Churchill, 1930.

[7] We consider daily tracings absolutely essential when studying acute diseases, because the abnormality may vary from hour to hour and from day to day. No digitalis or quinidine was ever prescribed; no drug was given that would itself produce changes in the electrocardiogram. The records were always made with the patient in the supine position.

In contrast to the slight changes noted in but three patients with rheumatoid (infectious) arthritis, we have a 100 per cent involvement of the heart in our sixty-three patients with acute rheumatic fever, as evidenced by marked electrocardiographic observations. These electrocardiographic evidences of myocardial involvement have been sino-auricular block, nodal rhythm, interference of the sinus and auriculoventricular nodes, auricular fibrillation, auricular flutter, auriculoventricular (P-R) intervals of 0.21 second or more, heart block with dropped beats, definite R-S-T abnormalities, T wave inversions, and transient widening, notching and slurring of the Q-R-S group.

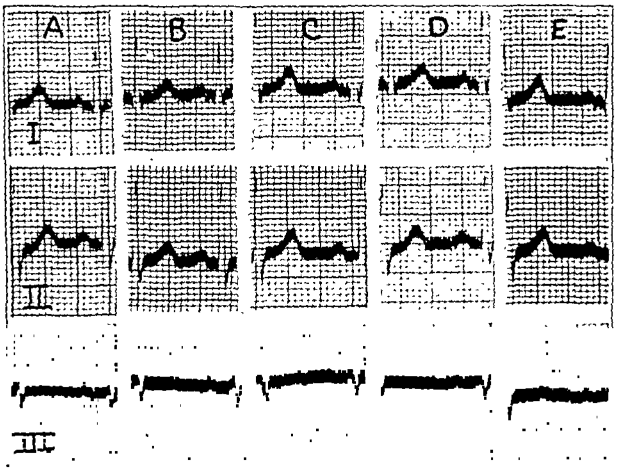

Fig. 1.—Rheumtoid (infectious) arthritis in a patient, aged 17 years. *A*, Sept. 17, 1930; *B*, September 22; *C*, September 27; *D*, October 3; *E*, October 9. (Continued in figure 2.)

Among the sixty-three rheumatic fever cases there were forty-three patients with tachycardia, the heart rate not uncommonly reaching 140 to 150 a minute. There were thirteen patients with bradycardia. Sinus arrhythmia was observed in fourteen patients and sino-auricular block in six patients. Auricular premature beats were recorded six times; ventricular, three. A simple nodal rhythm and a nodal tachycardia were each observed once. Interference of the sinus and auriculoventricular nodes was noted twice. Auricular fibrillation and auricular flutter were each seen twice.

Increased auriculoventricular conduction time (P-R interval) to 0.20 second occurred in eight cases and to more than 0.20 second in thirty-three cases, making a total of 65.6 per cent. Auriculoventricular blocks of 0.56 second were seen in the tracings. Auriculoventricular block with dropped beats were seen in three patients. The R-S-T abnormalities occurred with the greatest frequency, i. e., in fifty-three cases (84.8 per cent). T wave inversions were graphically noted in twenty-five cases (40 per cent).

COMMENT

The high incidence of myocardial involvement in acute rheumatic fever is not new. Many authors have obtained similar results. Some have found an incidence of more than 90 per cent. Cohn and Swift, and Rothschild, Sacks and Libman have predicted that every case would show myocardial involvement if daily electrocardiograms were taken.[8] This is exactly what we did. Rheumatoid (infectious) arthritis, on the other hand, has never been seriously investigated with the electrocardiogram. Rothschild, Sacks and Libman [8] did say, "In five cases of acute polyarthritis, which differed clinically from the rheumatic form, the electrical tracings exhibited none of the alterations noted in rheumatic fever." Their records were taken only once a week. These authors, however, suggested the possible clinical application of the electrocardiogram to the differential diagnosis of the two diseases.

In the many hundreds of tracings taken on the patients suffering from rheumatoid (infectious) arthritis, not once was there any change commonly considered indicative of myocardial involvement; i. e., no R-S-T abnormality, no T wave inversion, no auricular fibrillation, no auricular flutter, no case of auriculoventricular (P-R) block of more than 0.21 second, nor any block with dropped beats.

CONCLUSION

In seventeen patients with rheumatoid (infectious) arthritis on whom electrocardiograms were taken daily for an average of fifty-three days, only the slightest evidence of myocardial involvement was recorded.

In sixty-three cases of acute rheumatic fever, definite electrocardiographic evidence of myocardial involvement appeared in 100 per cent.

Rheumatoid (infectious) arthritis, no matter what it may be, is not a disease of the heart; acute rheumatic fever is preeminently a carditis.

The clinical application is this. In a case in which the differential diagnosis between rheumatoid (infectious) arthritis and acute rheumatic fever is difficult, if there are no electrocardiographic evidences of myocardial involvement, we would be prone to call it the former disease, whereas when there are electrical tracings definitely indicative of myocardial involvement we would be prone to call the disease acute rheumatic fever. The former affects the heart to the slightest degree, if at all; the latter to a maximum extent.

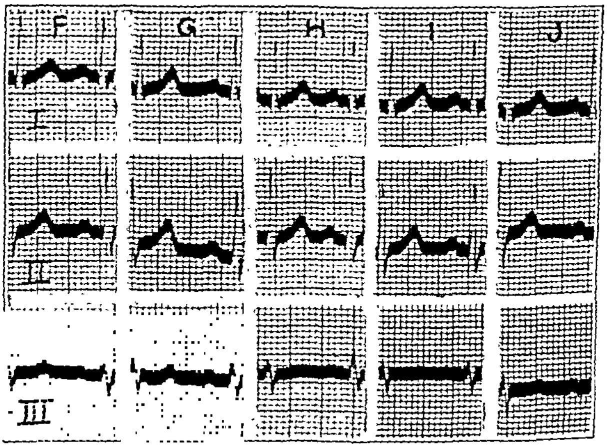

Fig. 2 (continued from figure 1).—*F*, October 15; *G*, October 20; *H*, October 25; *I*, October 31; *J*, November 5. No changes were observed in daily electrocardiograms taken over a period of forty-nine days.

124 East Sixty-First Street.

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[8] Parkinson, J.; Gosse, A. H., and Gunson, E. B.: The Heart and Its Rhythm in Acute Rheumatism, Quart. J. Med. **13**: 363 (July) 1920. Cohn, A. E., and Swift, H. F.: The Electrocardiographic Evidence of Myocardial Involvement in Rheumatic Fever, J. Exper. Med. **39**: 1 (Jan.) 1924. Rothschild, M. A.; Sacks, Benjamin; and Libman, Emanuel: The Disturbances of the Cardiac Mechanism in Subacute Bacterial Endocarditis and Rheumatic Fever, Am. Heart J. **2**: 356 (April) 1927.

DEXTROCARDIA SECONDARY TO EVENTRATION OF THE DIAPHRAGM

REPORT OF AN ASYMPTOMATIC CASE

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Dextrocardia with general transposition of the viscera is not particularly uncommon and offers no great difficulty in diagnosis. Isolated intrinsic dextrocardia without other grave cardiovascular maldevelopment is one of the rarest anomalies. To find a normal heart on the right side above normal liver dulness therefore suggests that the position of the heart is secondary to a defective diaphragm. Such displacement of the heart has been mentioned in many recent publications on eventration and hernia of the diaphragm. However, this point has not been emphasized in cardiologic literature, probably because, if any symptoms are present, subphrenic ones usually dominate the clinical picture.

In 1927, Christian[1] said of eventration of the diaphragm:

> The great majority of reported cases has occurred in males. It is almost invariably on the left side. . . . As the condition is congenital, both thoracic and abdominal viscera accommodate themselves to the defect, and as a result there are no symptoms. . . . The lung is not compressed, but the heart may be displaced upward or to the right. . . . The condition is shown definitely by the roentgen rays. The contour of the left leaflet is that of a smooth, sharply defined, bow-shaped shadow . . . The conditions most likely to simulate eventration are pneumothorax and congenital hernia. . . . As eventration never gives rise to any disturbance and is usually an accidental discovery, it requires no treatment.

More recently, however, Harrington[2] has said, "In some instances it is very difficult to differentiate between an eventration and a true diaphragmatic hernia." Moore and Kirklin,[3] the roentgenologists of the Mayo Clinic, have concurred in this: if the hernia is large, the heart is displaced to the right, and shading of the lung in proportion to the amount of compression is noted. In addition, they say:

> Reversed, or paradoxical, respiratory movement of the affected arch was for a time regarded as a distinguishing sign, but recent observers agree that respiratory movement may be normal, diminished, absent or reversed in either hernia or eventration. A more practical point, advanced by Morison, is that in eventration the upper level of the barium in the stomach always coincides with the esophageal opening when the patient is erect, whereas in hernia the upper level of the gastric content is likely to be above the plane of the esophageal aperture. . . . No attempt has been made at the Mayo Clinic to repair the diaphragm in cases of eventration.

Truesdale, who has emphasized cardiac symptoms in writing of diaphragmatic hernia, in a recent paper[4] on the subject said, "A dextrocardia often serves as a key to the diagnosis." He proved that the position of the diaphragm might be responsible for dextrocardia by reporting one case in which the heart was on the right before operation but reverted to its normal position after repair of the hernia.

REPORT OF CASE

History.—A school boy, aged 16, was referred for cardiologic investigation on account of dextroposition of the heart. His father had died at 29, following appendectomy. His mother was living and well, and had had only the one pregnancy. This had terminated with normal labor and delivery. The patient had been very wide awake from the beginning and had weighed 7 pounds (3.2 Kg.) at birth. When he was about 6 months old, his father had him on his lap with both hands around him when he discovered that the heart beat was strong on the right side. A physician had corroborated this observation at the time. Except for frequent attacks of tonsillitis, the child's health had been excellent until pneumonia at 8 years. The following year, he had been in bed for some weeks with diphtheria, which was said to have left him with an enlarged heart. Two years after this he had won a 4 mile cross-country race. At 12 years, a fluoroscopic examination of the chest had been made, and he had been told again that his heart was on the right and that it was "the size of a grown man's heart." Fortunately this did not worry the boy, and he continued to lead a normal athletic life. He played end on his school's football team, and indeed considered his "wind" better than that of most of his friends. He had never experienced any symptoms referable to the heart or abdominal viscera, although he was subject to frequent infections of the upper respiratory tract. His scholastic record was good.

Examination.—The patient was a muscular youth, 68¼ inches (173.4 cm.) tall, weighing 133 pounds (60.3 Kg.). There was no evidence of cyanosis or of clubbing. The eyegrounds were normal. The nasal septum was slightly deflected. The teeth were in good condition, and the tonsils had been cleanly removed. The thyroid gland was not enlarged. A rachitic rosary was present. The maximum thrust of the heart was in the fourth interspace, 6 cm. to the right of the midline, and systolic undulation was visible in the second and third interspaces above this. There were no thrills. On the right, dulness extended 3.0 cm. from the midline in the first interspace, 4.0 cm. in the second, 5.5 cm. in the third, 6.0 cm. in the fourth, and 4.5 cm. in the fifth; on the left, dulness extended 0, 2.0, 3.0, 3.5 and 2.0 cm., respectively. There were no murmurs, and the quality of the heart sounds was good. Rarely an extrasystole was detected. The right lung was normal. There was no dulness over the left lung; voice and breath sounds were normally transmitted throughout. Percussion revealed flatness over the normal area of the liver, and tympany over that of the stomach; the abdomen was soft. The genital organs, including the prostate and vesicles, the extremities and the principal reflexes, all seemed equally normal.

Urinalysis and the Kahn test gave negative results. The red cell count was 6,080,000; the leukocyte count was 6,200, and the differential count was normal. Hemoglobin was 15.2 Gm. per hundred cubic centimeters of blood.

On fluoroscopic examination, it was immediately seen that the heart was pushed to the right by the upper part of the stomach; this, distended by an air bubble, came up to the level of the fourth rib. Gas also visualized the splenic flexure of the colon to the right of the stomach, though not up so high. The upper border of these viscera appeared smooth as if under a relaxed, though intact, diaphragm. With some deep inspirations, the movement of the left half of the diaphragm seemed to us paradoxical; with others, normal though diminished. The lateral part of this leaflet always moved medially with inspiration. The patient was studied under the fluoroscope on several occasions, and with Dr. Edgar D. Shanks in consultation. Visualization of the esophagus with barium proved that it passed behind the aorta and its lower end turned sharply to the left and entered the stomach horizontally. The upper level of the barium in the stomach did not rise above the esophageal opening. The stomach extended as far down as the umbilicus and emptied normally into the duodenum on the right; peristalsis was somewhat hyperactive. After the ingestion of more barium, with the hips elevated above the shoulders, the barium entered freely the intrathoracic part of the stomach: there was no constriction at the normal level of the diaphragm

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[1] Christian, H. A.: Eventration of the Diaphragm, in Osler, William: and McCrae, Thomas: Modern Medicine, ed. 3, Philadelphia, Lea & Febiger 4: 344, 1927.

[2] Harrington, S. W.: Personal communication to L. M. B.

[3] Moore, A. B., and Kirklin, B. R.: Progress in the Roentgenologic Diagnosis of Diaphragmatic Hernia, J. A. M. A. **95**: 1966 (Dec. 27) 1930.

[4] Truesdale, P. E.: Diaphragmatic Hernia in a Child, Aged One Year, J. A. M. A. **96**: 847 (March 14) 1931.

(fig. 1). The anteroposterior teleroentgenogram (fig. 2) corroborated the fluoroscopic examination; the heart was not enlarged, and markings of the lung were superimposed over the gas bubble *in the stomach*: there was no atelectasis. In an oblique view (fig. 3), however, there was a break in the contour of the diaphragm near its lateral origin.

On reexamination, it was found that the normal resonance of the left lung in front was altered to tympany at the level of the fifth rib. In the recumbent position, tympany extended to the level of the fourth rib. When the patient jumped up and down, with the stethoscope medial to the left nipple, splashing in the stomach was audible. The patient told us at a later interview that the position of the heart shifted when he turned over in bed. We found that when he lay on his right side the right border of the heart was felt and percussed 7 cm. from the midline, and the left border was percussed at the midline. When he lay on his left side, the right border extended 4.5 cm. from the midline, and the left border seemed to be 4 cm. from it.

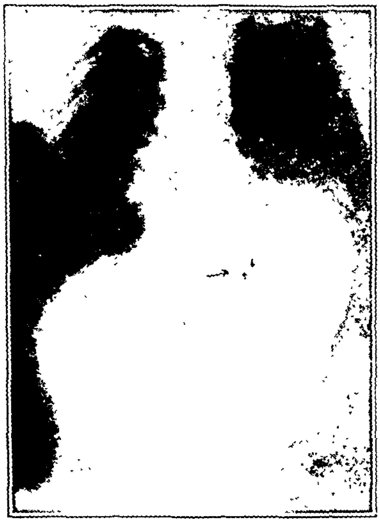

Fig. 1.—Roentgenogram taken with the stomach filled with barium and with the hips above the shoulders The cardiac portion of the esophagus is marked with an arrow. There is no constriction of the stomach at the normal level of the diaphragmatic arch.

In the electrocardiogram, by Dr. E. A. Bancker, the P, R and T waves were upright in all leads and there was no evidence of axis deviation or of abnormal cardiac mechanism.

COMMENT

At the conclusion of the history and physical examination, we were sure that this boy's heart was functionally normal. The position of the liver, stomach and left testicle established that this was not a case of general transposition. We knew that this dextroposition dated from early infancy: if not congenital, it had at least long preceded any disease affecting the intrathoracic organs. The very outline of the precordial dulness, moreover, suggested that the heart had been pushed to the right. The tympany at the base of the left lung in front should have been noted at the first examination. We believe that we should have been able to diagnose before roentgenologic examination that the position of the heart was secondary to that of the diaphragm.

It is to be emphasized that, in contrast to the "mirror picture heart" of general transposition, the heart in this case was entirely normal except for its displacement. This was proved by the roentgenogram and the electrocardiogram.

To determine whether this diaphragmatic lesion was eventration or hernia puzzled us until we read the discussion of the diaphragm by Assmann.[5] This enabled us to formulate the following theory as to our case: 1. When deep inspiration was abdominal in character, the left half of the diaphragm descended with the right but was not strong enough to descend as far as the normal half. 2. When deep inspiration was thoracic, the negative intrathoracic pressure and the elevation of the anterior attachment caused the left half of the diaphragm to ascend more than could be compensated for by its weakened musculature. 3. The muscular pull on the posterior and lateral attachments produced the medial inclination of the lateral part of the diaphragm. After formulating this theory, we examined the boy fluoroscopically for the fifth time. With forced thoracic inspiration the left half of the diaphragm did ascend; with forced abdominal inspiration it did descend.

Assmann also reported cases in which there was, in deep inspiration, a localized bulging in the upper contour of the normal diaphragm. This phenomenon was observed in persons otherwise normal, although it was noted more often in cases of tracheal or bronchial stenosis. Assmann explained it principally on the basis of inequality of the strength of various groups of muscle fibers.

The break in the contour of the diaphragm in our case is then not good evidence of hernia. If the lesion is hernia, the hernia is so large that repair would be difficult if not impossible, and strangulation is not probable; moreover, in the absence of symptoms neither the patient nor his mother would consider operation. The differential diagnosis in this case is therefore largely a matter of academic interest. However, we believe that the writings of Christian, Moore and Kirklin (including Morison), and Assmann justify us in the diagnosis of eventration of the diaphragm. If the lesion is eventration, "it requires no treatment."

We feel more confident that this boy's anomaly requires no treatment since reading the report by Livengood[6] of a case of isolated dextrocardia in a woman, aged 74, who had borne two children. From study of the roentgenologic and electrocardiographic data presented by him, we believe that this dextrocardia was also secondary to eventration of the diaphragm. However, eventration, though rare in women, is not always benign, for Dr. R. A. Bartholomew[7] is reporting a fatal case in a young woman who had been healthy until several months pregnant. In the investigation of abdominal symptoms developing at that time, it was found that the left half of the diaphragm was elevated and the heart pushed to the right. She would not consent to an abortion, so cesarean section was planned when the fetus was viable. Shortly before this time, complications precipitated labor, which resulted in complete rupture of the diaphragm and death. Eventration of the diaphragm is then a menace to the life of women in the child-bearing age. In the case of

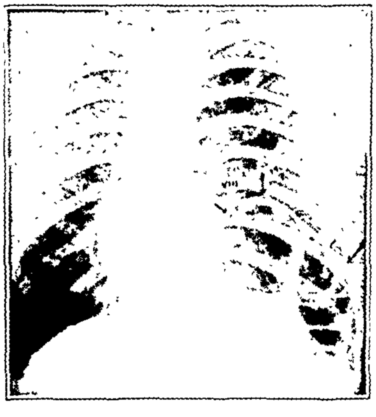

Fig. 2.—Teleroentgenogram showing the heart normal in size and contour (T. T., *27; M. R., 3.2; M. L., 6.4)* but pushed to the right by the stomach, the left ventricle resting against the cardia. The right diaphragm is normal; the left is poorly developed and ascends to the fourth rib in the midclavicular line, being pushed up by the stomach and intestine. There is no pulmonary atelectasis.

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[5] Assmann, Herbert: Klinische Röntgendiagnostik der inneren Erkrankungen, ed. 3, Leipzig, F. C. W. Vogel, 1924, Zwerchfell, p. 357.

[6] Livengood, H. R.: Dextrocardia: Report of a Case, J. M. Soc. New Jersey **27**: 235 (March) 1930.

[7] Dr. Bartholomew has graciously authorized this preliminary report. The patient was also examined clinically by one of us (W. T. B.).

males, it would appear possible to us that any factor causing extraordinary increase in intra-abdominal pressure might act as labor did in Bartholomew's case. We have therefore advised this boy against the more violent forms of exercise.

SUMMARY

Congenital dextroposition of the normal heart without evidence of transposition of other viscera in most cases is probably secondary to eventration of the diaphragm. A case of this type in an athletic youth has been reported. The condition has been entirely asymptomatic up to the present, and we believe that the position of his heart will never cause the patient any trouble. It is possible, however, that subphrenic symptoms may develop or that an extraordinary increase in intra-abdominal pressure, brought on by trauma or tremendous exertion, may result in rupture of the weakened diaphragm.

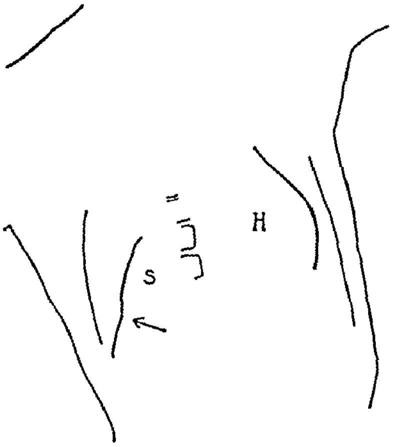

Fig. 3.—Tracing of roentgenogram taken at 6 feet, with the patient's left breast and shoulder against the plate. The arrow indicates the break in the contour of the diaphragm; *S*, the stomach; *H*, the heart.

Medical Arts Building.

Clinical Notes, Suggestions and New Instruments

TYPHOID HEPATOCHOLANGEITIS

CURE OF A "CARRIER" OF TWENTY-SIX YEARS' DURATION, WITH A FIVE YEAR "FOLLOW UP"

B. B. Vincent Lyon, M.D., Sc.D., Philadelphia

The case reported here deserves to be put on record because it indicates what may be accomplished in severe hepatocholangeitis with the persistent use of modern methods of treatment.[1]

History.—C. P. R., a man, aged 52, referred by Dr. Crawford Green of Troy, N. Y., first seen by me, Feb. 23, 1925, had had in 1898, at the age of 26, a fever diagnosed as malaria, while in army service in the Spanish War. This confined him to bed for a few days at a time, alternately defervescing and relapsing over a period of about six weeks. Between the ages of 26 and 30 he had attacks of epigastric pain associated with vomiting, jaundice and fever. These attacks occurred about every two months. Since the age of 30 he had been free from such attacks until June, 1923 (that is, for twenty-one years), but during this period he definitely damaged his cardiovascular system, liver and kidneys.

From June, 1923, he had several monthly attacks of pain in the upper right quadrant with recurring jaundice, nausea and vomiting, which led to an operation for biliary tract disease in April, 1924, in Troy, N. Y. There were found dense widespread adhesions, marked pericholecystitis, a small contracted gallbladder containing multiple stones and some pus, and some enlargement at the head of the pancreas. A cholecystectomy was done with difficulty.

Following this he convalesced slowly but with incomplete relief of the distress in the upper right quadrant. During June, 1924, he noticed soreness and tenderness under the upper abdominal scar, and during July and August a fluctuant mass could be palpated which gradually "pointed" in the lower right quadrant. He was taken to Albany, N. Y., where on Aug. 25, 1924, under local anesthesia another surgeon incised this mass. His notes are as follows: "Primary incision carried down into the sheath of right rectus muscle; on retracting fibers, there was exposed an abscessed cavity with thick fibrous walls containing a quantity of grayish thick pus, apparently under pressure, which had collected between the right rectus muscle and its posterior sheath, just below the level of the navel. The pus was evacuated, the cavity curetted, cultures were made. It was necessary to pack the wound with iodoform gauze that afternoon to control hemorrhage. B. typhosus was isolated in pure culture; the Widal agglutination reaction was positive; the Wassermann reaction was negative. B. typhosus was also recovered from the stools."

It seems necessary, therefore, to consider that the low running fever in 1898, instead of being malaria, was probably a "walking typhoid." At this point it is of moment to state that this patient was then listed by the New York State Board of Health as a typhoid carrier, twenty-six years after primary infection. A brief report of his case will be found in the *New York State Medical Journal* of Jan. 16, 1925, under Health Board Notes.

Following the patient's second hospital discharge he continued to complain of pain in the upper right quadrant, epigastric burning, distention and gas, general weakness, insomnia and constipation. Here follow the notes of his family physician, Dr. Green: "One night in October, 1924, he was seized with several general convulsions. In all, he had eight of these in intervals of about five minutes, and it took three-fourths grain (0.05 Gm.) of morphine and glycerin trinitrate to control them. Subsequently, there was considerable paresthesia of the right side with positive, but not great, paralysis of the left side of the face and inequality of pupils. All convulsions began on the right side. These symptoms, particularly the numbness, lasted for some time. Since the episode of convulsions there have been two or three attacks simulating a mild gallstone colic, with fever of a few hours' duration and jaundice for a few days." The foregoing notes accompanied the patient on his admission to a hospital in Philadelphia, Feb. 23, 1925.

Examination.—On arrival he appeared to be a very sick man; he was exhausted from his journey. He gave the impression of being highly toxic. He complained of pain in the upper right quadrant and epigastrium, abdominal distention with painful belching, and marked chilliness. His temperature ranged from 97 to 99 F. The leukocyte count was 10,100; polymorphonuclear neutrophils were 77 per cent. He was moderately jaundiced, his pulse was irregular with numerous skipped beats; the rate was 94. Peripheral arteries were considerably sclerotic. Systolic blood pressure was from 152 to 160; diastolic, 100. The left ventricle of the heart was moderately enlarged; action was overforcible; the aortic second sound was accentuated; there were numerous extrasystoles; cardiac sounds were heard through a wide area, front and back. The abdomen was distended, with moderate rigidity and spasm over the upper right rectus. The liver was not palpable; the percussion area of dulness was diminished and was sensitive to concussion. The spleen was not palpable. A persistent fistula discharging grayish pus in the lower right part of the abdomen was noted. It had required dressing twice a day since the previous August.

The right pupil was larger than the left; the left side of the mouth drooped; there were areas of anesthesia and paresthesia in the right arm and leg (adjudged as evidence of subsiding mild cerebral hemorrhage), extensive pyorrhea, and five capped teeth. Roentgen examination showed three apical abscesses. The tonsils were diseased; pus could be pressed out of the left tonsil.

Bacteriologic observations were as follows: Cultures from the gums and tonsils yielded Staphylococcus aureus, nonhemolytic streptococcus; from the bile drainage, B. typhosus, Staphylococcus aureus; from the abdominal sinus, B. typhosus, Staphylococcus albus; from the feces, B. typhosus, B. coli;

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[1] A more complete review of the subject appeared in the Journal of the Medical Society of New Jersey 28:799 (Nov.) 1931.

from the urine, B. coli and Staphylococcus albus, with no B. typhosus.

Urinalysis revealed no albumin, dextrose or ketones, and no fixation of specific gravity; there were occasional hyaline casts. Renal function was reduced to 12.5 per cent the first hour and 7.5 per cent the second hour on intramuscular injection of phenolsulphonphthalein. The twenty-four hour urine output was 500 cc.

The diagnosis was typhoid hepatocholangeitis; myocarditis; arteriosclerosis; toxic vs. interstitial nephritis; subsiding hemiplegia, and persistent abdominal sinus.

Treatment and Course.—General supportive treatment of the heart and kidneys was instituted; the protein diet was reduced; biliary drainage was given, and subsequently a combined polyvalent vaccine: B. typhosus from bile, sinus and feces; Staphylococcus aureus from the gums; nonhemolytic streptococcus from dental apical abscesses and tonsils.

Fifteen three-hour biliary drainages were given between February 25 and March 31, yielding 4,205 cc. of bile mixture weighing 3,936 Gm. (8⅓ pounds).

Four periods of "continuous plan" drainage between April 1 and 12 were given, yielding 10,235 cc. weighing 11,230 Gm. (23⅞ pounds). The pain was controlled after the first two drainages. Jaundice cleared, March 7, after five drainages. On March 14 the question of using mercurochrome-220 soluble intravenously as a magna sterilisans procedure was considered and declined because of depreciated kidney function. Had it been used, the interpretation of the successful results would have been complicated.

These liver drainages, yielding 3½ gallons (14 liters) in about six weeks, thinned out the bile from a very viscid, turbid, heavy sediment, multiple floccule type, microscopically rich in pus cells, inflammatory detritus and many colonies of bacteria, to a much clearer bile of thinner consistency and constantly diminishing floccules. Quantitative colony counts for B. typhosus were steadily reduced, although still positive in bile and feces, but negative in sinus cultures on the patient's discharge from the hospital, April 24.

The immediate response to treatment was quite spectacular. This very sick man stood the drainages very well; he was first out of bed on the fifteenth day; he lunched at a hotel on the twenty-fifth day. There was rapid subsidence of the toxic picture; the cardiorenal function improved with corresponding improvement in the blood, on chemical examination. Nonprotein nitrogen dropped from 50 mg. to 25.2; urea nitrogen from 20 mg. to 11.1; uric acid from 4.16 mg. to 2.91; dextrose and creatinine practically unchanged, from 149 mg. to 148, and from 1.88 mg. to 1.87, respectively.

From then on the progress of this case was tedious but progressively good. Under the supervision of his family physician and a technical nurse he continued biliary drainages throughout the summer of 1925 at intervals of from four to seven or ten days and an overnight drainage occasionally.

He returned to Philadelphia for a first recheck, October 6 to 14. Cultures from bile, feces and sinus were made each day for three days and twice more on alternate days, and B. typhosus was not found. He was advised to have the abdominal sinus surgically repaired, but he persistently declined. On his return to Troy additional cultures were made by the New York State Board of Health and were negative for typhoid, and the patient was released as a "carrier."

Over the next two years recultures were made a number of times, both in Troy and in Philadelphia, and were negative for B. typhosus. He had gained from 153 to 177 pounds.

Throughout 1926 and 1927 he took a short morning or an overnight drainage about once a month. The abdominal sinus, although yielding no growth to cultures, would not close. He was again advised to have it closed.

On Jan. 17, 1927, he writes: "On January 4, Dr. ——— probed the sinus; a few threads were exposed, and caught in forceps; the doctor gradually pulled out a roll of gauze about 4 inches long and seven-eighths inch in diameter. The wound drained slightly for about ten days and is now all healed. I thought you would like to have this for your records."

Final Results.—The patient has been followed up by letter twice a year. He last reports, Sept. 26, 1931, as follows: "Your letter of the 25th was received this morning. I am glad to report that my digestive apparatus is in good order. I have not had an ache or a pain since I first left your hospital. I go shooting nearly every day in the fall and winter and trout fishing equally as much in the spring and summer. The examining surgeons have twice refused me an increase of government pension, saying that I am in very good shape considering my 58 years of age. For the past two years I have not been on any diet nor taken extra care of myself, but it does not seem to make any difference. It is over three years since I have had a biliary drainage."

2031 Locust Street.

Council on Physical Therapy

The Council on Physical Therapy of the American Medical Association has authorized pulication of the following report.

H. A. Carter, Secretary.

DeVILBISS ATOMIZERS, POWDER BLOWERS AND VAPORIZERS ACCEPTABLE

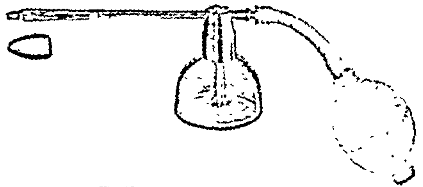
The DeVilbiss Company, Toledo, Ohio, manufactures atomizers, powder blowers and vaporizers (nebulizers) for medicinal use. The twenty-eight products herein mentioned appear to be of good construction and the claims made for them meet the requirements of the Council.

DeVilbiss atomizers are recommended by the firm for applying a spray of medicinal agents to tissues in liquid form. The specifications of fifteen atomizers follow:

DeVilbiss Atomizer No. 12.—Spraying parts made of hard metal, nickel plated and polished. One piece, adjustable gold plated tip. One drachm bottle. Detachable nasal guard. Glass outlet tube. Taper connection between bulb and atomizer, permitting instant detachment. Vacuum plan construction.

DeVilbiss Atomizer No. 14.—Spraying parts made of hard metal, nickel plated and polished. Detachable nasal guard. Glass outlet tube. One drachm bottle. Especially constructed for spraying ephedrine and similar oil solutions. Compression type construction.

DeVilbiss Atomizer No. 15.—Spraying parts made of hard metal, nickel plated and polished. One piece, adjustable gold plated tip. Detachable nasal guard. Glass outlet tube. Taper connection between bulb and atomizer, permitting instant detachment. Vacuum plan construction.



DeVilbiss atomizer No. 15

DeVilbiss Atomizer No. 16.—Spraying parts made of hard metal, nickel plated and polished. One piece, adjustable gold plated tip. Detachable nasal guard. Glass outlet tube. Extra amber bottle with stopper. Taper connection between bulb and atomizer, permitting instant detachment. Vacuum plan construction.

DeVilbiss Atomizer No. 18.—Spraying parts made of hard metal, nickel plated and polished. One piece, adjustable gold plated tip. Closure valve on head directly over the bottle makes a nonspillable outfit for travelers' use. Detachable nasal guard. Glass outlet tube. Taper connection between bulb and atomizer, permitting instant detachment. Vacuum plan construction.

DeVilbiss Atomizer No. 28.—Spraying parts made of hard metal, nickel plated and polished. Inner tube easily removed for cleaning. Detachable nasal guard. Glass outlet tube. Taper connection between bulb and atomizer permitting instant detachment. Vacuum plan construction.

DeVilbiss Atomizer No. 30.—Spraying parts made of hard metal, nickel plated and polished. Glass outlet tube. Constructed on vacuum principle and anatomically correct for nasal use.

DeVilbiss Atomizer No. 150.—Spraying parts made of hard metal, chromium plated and polished. Inner tube easily removed for cleaning. Glass outlet tube. Vacuum plan construction.

DeVilbiss Atomizer No. 152.—Spraying parts made of hard metal, chromium plated and polished. One piece, adjustable gold plated tip. Glass outlet tube. Vacuum plan construction.

DeVilbiss Atomizer No. 154.—Spraying parts made of hard metal, chromium plated and polished. Spray tube easily detached for sterilizing. One piece, adjustable gold plated tip. Glass outlet tube. Vacuum plan construction.

DeVilbiss Atomizer No. 155.—Exterior of atomizer chromium plated and polished. Inside of bowl gold plated. One piece, adjustable gold plated tip. Small container for individual doses. Detachable nasal guard. Vacuum plan construction.

DeVilbiss Atomizer No. 156.—Spraying parts made of hard metal, chromium plated and polished. Interchangeable spray tips; postnasal tube, four-way tip and one-way tip. Glass outlet tube. Constructed on compression principle.

DeVilbiss Atomizer No. 158.—Spraying parts made of hard metal, chromium plated and polished. Glass outlet tube. Constructed on compression principle. Especially for ephedrine and similar oil solutions.

DeVilbiss Atomizer No. 159.—Spraying parts made of hard metal, chromium plated and polished. One piece, adjustable gold plated tip. Cutoff button on top of spray head for stopping spray instantaneously and substituting a flow of air. Glass outlet tube. Vacuum plan construction.

DeVilbiss Atomizer No. 251.—Spraying parts made of hard rubber. Detachable nasal guard. Hard rubber outlet tube. Inner tube easily removed for cleaning. Taper connection between bulb and atomizer, permitting instant detachment. Vacuum construction.

DeVilbiss vaporizers (nebulizers), the firm claims, are used to create a vapor for inhalation of medicinal agents in an oil base.

DeVilbiss Vaporizer No. 41.—Constructed to produce a vapor only from oil solutions. Spraying parts made of hard metal, nickel plated and polished. Detachable nasal guard. Glass outlet tube. Taper connection between bulb and vaporizer, permitting instant detachment.

DeVilbiss Electric Vaporizer No. 47.—Constructed for applying warmed medication in the form either of solutions or of vapor ointments. Consists of a black case with electric plug and top made of hard metal, nickel plated and polished. Detachable nasal guard. Taper connection between bulb and vaporizer, permitting instant detachment.

DeVilbiss Vaporizer No. 48.—Constructed to produce a large volume of extra dry vapor from oil solutions. Spraying parts made of hard metal, chromium plated and polished. Detachable nasal guard. Glass outlet tube. Taper connection between bulb and vaporizer, permitting instant detachment.

DeVilbiss Vaporizer No. 49.—Constructed to produce a vapor only from oil solutions. Spraying parts made of hard metal, nickel plated and polished. Detachable nasal guard. Glass outlet tube. Metal table inside bottle for regulating density of vapor. Taper connection between bulb and vaporizer, permitting instant detachment.

DeVilbiss Vaporizer No. 180.—Constructed to produce a vapor only from oil solutions. Spraying parts made of hard metal, chromium plated and polished. Detachable nasal guard. Glass outlet tube. Metal table inside bottle for regulating density of vapor.

DeVilbiss Vaporizer No. 181.—Constructed to produce a large volume of extra dry vapor from oil solutions. Spraying parts made of hard metal, chromium plated and polished. Detachable nasal guard. Glass outlet tube.

DeVilbiss powder blowers, it is claimed, are used to apply a medicament in powdered form.

DeVilbiss Powder Blower No. 36.—Spraying parts made of hard metal, nickel plated and polished. Adjustable tip. Glass outlet tube. Taper connection between bulb and atomizer, permitting instant detachment. Compression plan construction.

DeVilbiss Powder Blower No. 175.—Spraying parts made of hard metal, chromium plated and polished. Single metal outlet tube stops clogging. Compression plan construction.

The following specialized instruments have been investigated:

DeVilbiss Electric Steam Vaporizer No. 42.—Constructed to produce a warm medicated vapor. Cover spout, medicine chamber and heating element housing made of bakelite. Glass jar. Electric cord with plugs. Carbon electrodes provide heating device. Especially constructed to insure perfect medication of vapor and eliminate any possibility of throwing drops of the solution. Current automatically cuts off when water is evaporated.

DeVilbiss Wax Sprayer No. 110.—Constructed for heating and spraying waxlike substances on burns. Container and top made of hard metal, nickel plated and polished. Water jacket and preparation container in one piece. Taper connection between bulb and sprayer, permitting instant detachment.

DeVilbiss Wax Sprayer No. 113.—Single container outfit for spraying waxlike substances on burns. Container and top made of hard metal, nickel plated and polished. Taper connection between bulb and sprayer, permitting instant detachment.

DeVilbiss Syringe No. 157.—Constructed for producing a stream and designed primarily for washing the middle ear. Spraying parts made of hard metal, chromium plated and polished. Glass outlet tube. Spray tip is detachable, making it possible to use other tips that are available.

DeVilbiss Irrigator No. 190.—Constructed to produce a fine stream in treating eyes. Spraying parts made of hard metal, chromium plated and polished. Graduated scale on bottle. Bulb attached directly on to bottle, making a compact outfit.

The DeVilbiss Company makes no therapeutic claims for the instruments alone. It is claimed, however, that the aforementioned instruments will apply medicaments in liquid or powder form in a proper manner and in accordance with the wishes of the physician prescribing their use.

The Council on Physical Therapy accepts the aforementioned atomizers, powder blowers and vaporizers (nebulizers) for inclusion in its list of accepted devices for physical therapy.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

W. A. Puckner, Secretary.

DECHOLIN.—Dehydrocholic Acid.—An oxidation product of cholic acid derived from natural bile acids.

Actions and Uses.—(See Bile Salts and Bile Salt Compounds, New and Nonofficial Remedies, 1931, p. 92). Decholin is proposed for use in functional insufficiency of the liver; to outline the bile ducts at operation and in relieving the possible occurrence of some of the postoperative symptoms; in cholecystography, to accelerate the appearance of the gallbladder shadow and to hasten removal of residual tetraiodophenolphthalein from the biliary apparatus; in cardiac decompensation with hepatic congestions, cirrhosis of the liver and similar disturbances of hepatic function with ascites.

Dosage.—From 0.25 to 0.5 Gm. (4 to 8 grains) two to three times daily after meals for a period of four to six weeks.

Manufactured by J. D. Riedel-E. de Haen, A. G. Berlin, Germany (Riedel-de Haen, Inc., New York, distributor). No U. S. patent. U. S. trademark 266,217.

Decholin Tablets, 3¾ grains.

Decholin occurs as a fine, colorless, crystalline powder with a bitter taste; sparingly soluble in alcohol and glacial acetic acid. It melts at 233-235 C.

Boil about 1 Gm. of decholin with 100 cc. of water for two minutes; no odor develops; cool and filter: Separate portions of 10 cc. each of the filtrate yield no opalescence with 1 cc. of diluted nitric acid and 1 cc. of silver nitrate solution (*chloride*); no turbidity with 1 cc. of diluted nitric acid and 1 cc. of barium nitrate solution (*sulphate*); no turbidity with 1 cc. of diluted sulphuric acid (*soluble barium compounds*); no coloration or precipitation on saturation with hydrogen sulphide (*salts of heavy metals*).

Dry about 1 Gm. of decholin, accurately weighed, at 100 C.: The loss in weight does not exceed 1.5 per cent. Incinerate about 1 Gm. of decholin, accurately weighed: The residue does not exceed 0.1 per cent. Dissolve about 0.5 Gm., accurately weighed, in 40 cc. of previously neutralized alcohol, dilute with about one-half the volume of water and titrate with tenth-normal sodium hydroxide solution using phenolphthalein as an indicator: The amount of tenth-normal sodium hydroxide solution consumed corresponds to not less than 98.5 per cent nor more than 101.5 per cent.

DECHOLIN SODIUM.—Sodium Dehydrocholate.—The sodium salt of dehydrocholic acid.

Actions and Uses.—(See Bile Salts and Bile Salt Compounds, New and Nonofficial Remedies, 1931, p. 92). The actions and uses of decholin-sodium are the same as those of decholin.

Dosage.—Decholin-sodium is administered intravenously. One injection is given on each of three successive days. According to the urgency of the case, the first dose consists of from 5 to 10 cc. of the 20 per cent solution; the second and third, of 10 cc. The 5 per cent solution may be used at the beginning or the end of the treatment or when a less intensive effect is desired.

Manufactured by J. D. Riedel-E. de Haen, A. G. Berlin, Germany. (Riedel-de Haen, Inc., New York, distributor). No U. S. patent. U. S. trademark 266,217.

Ampoules Solution Decholin-Sodium, 5 per cent, 10 cc.
Ampoules Solution Decholin-Sodium, 20 per cent, 10 cc.

Decholin-sodium occurs as a fine, colorless, crystalline powder with a very bitter taste, soluble in water and alcohol. An aqueous solution is alkaline to litmus.

Dissolve about 1 Gm. of decholin-sodium in 200 cc. of water; add an excess of hydrochloric acid; collect the resultant dehydrocholic acid on a filter, wash, and recrystallize from 80 per cent acetic acid; it melts at 233-238 C.

Dissolve about 0.5 Gm. of decholin-sodium in 100 cc. of water, acidify with hydrochloric acid and filter: Separate portions of 10 cc. each of the filtrate yield no turbidity with 1 cc. of barium chloride solution (*sulphate*); no coloration or precipitation on saturation with hydrogen sulphide (*salts of heavy metals*).

Dry about 1 Gm. of decholin-sodium, accurately weighed, to constant weight at 100 C.: The loss in weight does not exceed 7 per cent. Weigh accurately about 1 Gm. in a tared platinum crucible, add 2 cc. of sulphuric acid, gently heat while fumes of sulphur trioxide are evolved, repeat, using two portions of 1 cc. of sulphuric acid, respectively, ignite, cool and weigh as sodium sulphate: The percentage of sodium corresponds to not less than 5.3 per cent, nor more than 5.6 per cent, when calculated to the dried substance.

TUBERCULIN DENYS (See New and Nonofficial Remedies, 1931, p. 369).

The Cutter Laboratory, Berkeley, Calif.

Tuberculin B. F. (Bovine).—A tuberculin Denys prepared with bovine cultures of Bacterium tuberculosis; preserved with cresol; for use in dilutions only. Marketed in 1 cc. vials; also in serial dilutions.

Committee on Foods

The following products have been accepted by the Committee on Foods of the American Medical Association following any necessary corrections of the labels and advertising to conform to the Rules and Regulations. These products are approved for advertising in the publications of the American Medical Association, and for general promulgation to the public. They will be included in the Book of Accepted Foods to be published by the American Medical Association.

Raymond Hertwig, Secretary.

CALIFORNIA FRUIT GROWERS EXCHANGE ADVERTISING FOR SUNKIST ORANGES, LEMONS AND GRAPEFRUIT

Sponsors.—California Fruit Growers Exchange, Los Angeles. This exchange is a cooperative marketing organization owned and operated by 13,000 citrus fruit growers. The exchange sells the fruit for the growers to the fruit trade.

Description.—"Sunkist" brand fresh mature oranges, grapefruit and lemons which pass the exchange standards for maturity, appearance and eating quality. Frost damaged fruit is excluded.

Harvesting, Shipment and Distribution.—

Oranges: Approximately 60 per cent of all oranges and 85 per cent of all lemons consumed in the United States and Canada are grown in California. The navel and Valencia are the two chief varieties of oranges. The navel orange ripens in the fall and winter and is packed and shipped from November to May. This orange has a "navel" formation at the end opposite the stem and is seedless. The Valencia orange ripens from April until November. This orange is almost seedless. The harvesting of oranges in California therefore proceeds throughout the year and fresh fruit is always available on the market. The other varieties of oranges, Mediterranean sweets, bloods, St. Michaels, seedlings and tangerines are relatively unimportant.

More than 210,000 acres of California are planted with orange trees which are budded seedlings. The bud is from pedigree trees. The trees must be carefully nurtured and cared for. "Sunkist" oranges are harvested at the time of maturity equal to or higher than that called for by state or federal requirements. Damaged fruit is not permissible under the "Sunkist" brand. A small percentage of the fruit is treated with ethylene gas at the beginning of the shipping period of some varieties to hasten exterior color development. Only fruit passing fixed requirements of maturity, appearance and all around satisfaction and dependability are packed as "Sunkist" oranges.

The oranges are clipped from the trees and carefully handled to prevent injuries in which decay spores may lodge and later attack the fruit. The fruit is carefully laid in boxes that have been dipped in antiseptic solution. All pickers wear gloves. The fruit is conveyed to packing houses, where it is allowed to stand for several days to permit evaporation of some moisture from the rind to make the skin less subject to injury; it is thoroughly washed in warm water to remove dust, rinsed with cold water and dried by air blast.

The oranges on endless canvas belts are graded into classes. The different grades are separated by sizing machines into groups of different sizes. The best oranges of the different sizes are classed as "Sunkist," which word is indelibly stamped on the skin of each orange. Usually from one half to two thirds of the fruit qualify for the "Sunkist" grade. The oranges are packed in the familiar orange crates and sold by size, 80, 100, 126, 150, 176, 200, 216, 252, 288 and 324 respectively to the box. The freight cars of oranges are refrigerated in summer and heated in winter.

Lemons: The lemon tree produces throughout the year. Some trees yield as high as 3,000 fruit. The buds, flowers and fruit are on the tree at the same time. California thus markets fresh lemons throughout the year. The two prominent varieties are the Lisbon and the Eureka. There are more than 45,000 acres of lemon planting in California.

The culture of the lemon tree is similar to that for the orange tree.

Lemons are picked according to size rather than by color, all grades of lemons being picked green. Picking crews pass through the groves each six weeks, carrying rings 2¼ to 2⅜ inches in diameter, which are slipped over the fruit. Lemons passing through the ring are left on the tree. Fruit not passing through the rings is picked by clipping and handled with great care, as described for oranges.

The green fruit is separated from the yellow at the packing house and placed in storage rooms to cure at 18 C. and a humidity of 85. The skin in curing gradually assumes a waxy yellow color. When ready for shipment the lemons are removed from storage, carefully graded for size, and packed 240, 270, 300, 360, 420, 442 and 490 to the box.

Grapefruit: There are more than 14,000 acres planted with grapefruit in California. The Marsh seedless is the principal fruit grown. Harvesting extends from November to the following August in the various districts. The grapefruit is handled and packed as described for the orange. In order to develop the flavor, the grapefruit is sometimes stored and cured before shipment as described for the lemon.

Analysis (submitted by the exchange).—

Oranges (Citrus sinensis)
Average proximate analysis, edible portion

	per cent
Moisture	85.7
Ash	0.6
Fat (ether extract)	0.0
Protein (N × 6.25)	0.6
Reducing sugars as invert	9.1
Crude fiber	0.6
Carbohydrates other than crude fiber (by difference)	12.5
Acids as citric	1.2

Lemons (Citrus limonia)
Average proximate analysis, edible portion

	per cent
Moisture	89.3
Ash	0.5
Fat (ether extract)	0.6
Protein (N × 6.25)	0.9
Reducing sugars as invert	2.2
Crude fiber	0.9
Carbohydrates other than crude fiber (by difference)	7.8
Acids as citric	5.1

Grapefruit (Citrus grandus)
Average proximate analysis, edible portion

	per cent
Moisture	87.7
Ash	0.4
Fat (ether extract)	0.2
Protein (N × 6.25)	0.5
Reducing sugars as invert	6.6
Crude fiber	0.3
Carbohydrates other than crude fiber (by difference)	10.9
Acids as citric	2.2

Calories.—Approximately 0.6 per gram; 17 per ounce.

Vitamins.—Citrus fruits are a fair source of vitamin A, a good source of B and an excellent source of vitamin C.

Claims of Exchange.—Sunkist citrus fruits have a distinctive flavor and rich juice, contain minerals and carbohydrates which metabolically are antagonistic to acidosis of both the acid-ash and acetone type, and stimulate appetite. The vitamin C content is quite constant and according to some experimental evidence tends to arrest such tooth decay, gum troubles and pyorrhea as may be due to the deficiency of that vitamin. Fresh Sunkist fruits are available the year round.

SPAULDING'S SUNSHINE VITAMIN D BREAD

Manufacturers.—R. Z. Spaulding Co. (the holding company), Binghamton, N. Y.

R. Z. Spaulding Co., Elmira, N. Y.
Huddleston-Walton Co., Oneonta, N. Y.
Henry German Baking Co., Scranton, Pa.
Henry German Baking Co., Wilkes-Barre, Pa.
R. Z. Spaulding Co., Middletown, N. Y.
Hazelton Baking Co., Hazelton, Pa.
Merchants Baking Co., Shamokin, Pa.

Description.—A white bread prepared by the sponge dough method containing an added special nutrient vitamin D equivalent to the vitamin D of three teaspoonfuls of standard cod liver oil for each 24 ounces of baked bread (140 vitamin D units defined by the Council on Pharmacy and Chemistry, New and Nonofficial Remedies, 1931, page 414) and manufactured under license granted by the General Baking Company of New York.

Manufacture.—The sponge dough ingredients, patent flours of spring and winter wheats, water, yeast and a yeast food containing calcium sulphate, ammonium chloride, sodium chloride and potassium bromate, and malt syrup are mixed in a high speed mixer. The sponge dough is fermented for four hours, after which are added flour, water, sweetened condensed skim milk, salt, lard, sucrose, malt syrup and corn oil containing irradiated ergosterol to make the completed dough, which is cut into pieces of desired weight. The pieces are fermented for a short time, molded into loaf form, panned, further fermented, baked for from forty to forty-five minutes, cooled, and wrapped in wax-paper.

The factory, equipment and storage rooms for the materials used are kept in strictly sanitary condition.

Analysis (submitted by manufacturer).—

	per cent
Moisture (entire loaf)	34.5
Ash	1.6
Fat	1.2
Protein (N × 6.25)	9.4
Crude fiber	0.4
Carbohydrates other than crude fiber (by difference)	52.9

Calories.—2.6 per gram; 74 per ounce.

Vitamins.—The vitamin D (irradiated ergosterol) is incorporated in this bread under license granted by the General Baking Company of New York. A vegetable oil solution of vitamin D standardized by biologic tests is added to the bread dough in quantities guaranteed by the Pediatric Research Foundation of Toronto to be equivalent to 140 D units, or the vitamin D of three teaspoonfuls of standard cod liver oil for each 24 ounces of bread. The baked bread is continuously assayed by that foundation for verification. The D units are those defined by the Council on Pharmacy and Chemistry of the American Medical Association (New and Nonofficial Remedies, 1931, page 414).

Claims of Manufacturer.—This bread provides substantial amounts of vitamin D needed in normal nutrition.

HYGEIA PURE STRAINED SPINACH

Contains Vitamin D

Added Irradiated Ergosterol (mildly seasoned with salt)

Manufacturer.—Snider Packing Corporation, Rochester, N. Y.

Distributor.—Hygeia Nursing Bottle Company, Buffalo, N. Y.

Description.—Strained spinach retaining in large measure the mineral and vitamin content of the raw spinach used; with added vitamin D (irradiated ergosterol), 60 D units per fluidounce; packed in jars. The D units are those defined by the Council on Pharmacy and Chemistry of the American Medical Association (New and Nonofficial Remedies, 1931, p. 414). One fluidounce is equivalent in vitamin D to the D content of one teaspoonful of cod liver oil. Mildly seasoned with salt.

Manufacture.—Local farmers are contracted with for growing and delivering the spinach, which is purchased under U. S. government inspection grades. The sorted spinach is passed through a dry "riddler," which removes loose and dry foreign material, is washed in an eccentric type tank washer, is wilted by application of water at 70 C. followed by a "shot" of steam and filled into No. 10 cans, and salt solution is added. The filled cans are sealed and processed for fifteen minutes at 122 C.

The canned spinach is puréed by essentially the same procedure as described for the Strained Peas (THE JOURNAL, Feb. 13, 1932, p. 555). The processing of the final canned product is that described for the Strained Peas.

Irradiated ergosterol is incorporated in the spinach, as described for the Strained Peas.

Analysis (submitted by manufacturer).—

Specific gravity 20 C./20 C.	1.02
	per cent
Moisture	94.6
Total solids	5.4
Ash	1.5
Fat (ether extract)	0.3
Protein (N × 6.25)	1.7
Crude fiber	0.4
Carbohydrates other than crude fiber (by difference)	1.5
Starch (acid hydrolysis method)	0.2
Calcium (Ca)	0.004
Iron (Fe)	0.0012
Phosphorus (P)	0.017

Calories.—0.2 per gram; 6 per ounce.

Vitamins and Claims of Manufacturer.—See these sections for Strained Peas.

CLAUSSEN'S BREAD

Manufacturer.—H. H. Claussen's Sons, Augusta, Ga.

Description.—A white bread made by the sponge dough method.

Manufacture.—The sponge dough ingredients, short patent flours of southwest and northwest wheats, water, yeast and a yeast food containing calcium sulphate, ammonium chloride, sodium chloride and potassium bromate, are mixed in a high speed mixer. The sponge dough is fermented for from four to five hours, after which are added flour, water, salt, sucrose, lard and sweetened condensed whole milk to make the completed dough, which is cut into pieces of desired weight. The pieces are fermented for a short time, molded into loaf form, panned, further fermented, baked for from thirty to thirty-five minutes, cooled, and wrapped in wax-paper.

The factory, equipment and storage rooms are kept in strictly sanitary condition.

Analysis (submitted by manufacturer).—

	per cent
Moisture (entire loaf)	37.6
Ash	1.6
Protein (N × 6.25)	8.9
Fat	3.0
Crude fiber	0.3
Carbohydrates other than crude fiber (by difference)	48.6

Calories.—2.6 per gram; 74 per ounce.

Claims of Manufacturer.—A bread of good quality.

CLAUSSEN'S OLD-TIMEY BREAD

Manufacturer.—H. H. Claussen's Sons, Augusta, Ga.

Description.—A white bread made by the straight dough method.

Manufacture.—The dough ingredients, patent flour, water, cake flour, yeast, salt, sucrose, skim milk and lard, are mixed in a high speed mixer. The dough is fermented for two hours, molded into loaf form, panned, baked for from forty-five to sixty minutes, cooled, and wrapped in wax-paper. The factory, equipment and storage rooms for the materials used are kept in strictly sanitary condition.

Analysis (submitted by manufacturer).—

	per cent
Moisture (entire loaf)	32.8
Ash	1.1
Protein (N × 6.25)	9.2
Fat	3.6
Crude fiber	0.3
Carbohydrates other than crude fiber (by difference)	53.0

Calories.—2.8 per gram; 80 per ounce.

Claims of Manufacturers.—A bread of good quality.

REPORTS OF THE COMMITTEE

THE COMMITTEE HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT.
RAYMOND HERTWIG, Secretary.

"SWEET WHEAT BREAD" NOT ACCEPTABLE

The Vermont Baking Company, White River Junction, Vt., submitted to the Committee on Foods a white bread called "Sweet Wheat Bread." This bread is prepared by the sponge dough method from short patent flours of northwest and southwest wheats, water, malt syrup, a yeast food containing calcium sulphate, ammonium chloride, sodium chloride and potassium bromate, dry skim milk, salt, dextrose, lard and a partially hydrolyzed starch.

Analysis (submitted by manufacturer).—

	per cent
Moisture (entire loaf)	37.5
Ash	1.6
Fat (ether extract)	2.7
Protein (N × 6.25)	9.2
Crude fiber	0.2
Carbohydrates other than crude fiber (by difference)	48.8

Discussion of Name.—The name implies that this is a "sweetened bread" containing materially more sugar and sweeter of taste than the usual white breads, which is not true to fact; it is inapplicable to a bread of the stated composition and is misleading. The manufacturer is unwilling to accept the Committee's recommendation for correcting the trade name; therefore this bread cannot be listed among the Committee's accepted foods.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, MARCH 12, 1932

NORMAN BAKER VERSUS THE AMERICAN MEDICAL ASSOCIATION

The jury in the case of Norman Baker versus the American Medical Association, trial of which was completed on Thursday, March 3, after some four weeks of court procedure, returned a verdict for the Association. The editorials to which Baker objected were published in The Journal, April 12 and 19, 1930, and in *Hygeia*, May, 1930. During the trial, attorneys for the Association, headed by Mr. C. M. Burke of Messrs. Loesch, Schofield, Loesch and Burke, introduced evidence, justifying the statements that had been made. With Mr. Burke were associated Mr. C. L. Harrell of the same firm and Mr. Charles M. Dutcher, Iowa City. In addition to depositions introduced in great number, expert testimony was given for the Association by Drs. Francis Carter Wood, Joseph C. Bloodgood, Burton T. Simpson, Albert C. Broders and Max Cutler. Many other physicians aided the Association in this case. As was anticipated, the case of Norman Baker included primarily depositions and testimony offered by patients who considered themselves cured of what they believed to be cancer, and statements by various other individuals who claimed special competence in the cancer field, most of these "experts" being the subjects of previous reports by the Bureau of Investigation. The detailed account of the trial will be made available by the Bureau of Investigation in The Journal next week.

In publishing its reports on charlatanism and quackery, the American Medical Association fulfils a duty to the medical profession and to the public. Through the radio station KTNT, no longer on the air, Baker reached vast numbers of people. Newspapers, educational authorities, officials of county and state medical societies and numerous physicians, particularly in Iowa, Illinois, Wisconsin and Minnesota, asked The Journal to aid in combating the type of information that Baker was disseminating. Evidence offered by Baker himself indicated that his income from his medical activities, beginning at $1,300 per month, rose to approximately $75,000 per month in the heydey of his efforts and was reduced to some $7,000 in January, 1932, following the publication of articles concerning these activities by The Journal and by *Hygeia.*

During the progress of the trial, many organs of public expression intimated a realization of the significance of this work of the American Medical Association. The editorial statement of the Columbus (Ohio) *Evening Dispatch* is typical:

> In the suit of Norman Baker, of Muscatine, Iowa, against the American Medical association, Mr. Baker asks for $500,000, on the ground that the association has been guilty of libel in its exposure of his cancer curing claims and methods.
>
> The brief accounts of the trial carried in the press dispatches do not indicate that Mr. Baker is likely to get his $500,000. They do indicate that what he objects to as a libel was in reality a public service of great value.
>
> A former partner of Baker in his business was called by him as an expert witness, last Friday. Federal Judge Norbye, however, insisted first on knowing what were his qualifications for testifying as an expert in the field of cancer cure, and what he found out, by a few well directed questions, was that the man's education had not passed beyond the eighth grade in the public schools and that his work up to the time when he began treating cancer patients had been that of a surveyor's assistant and a coal miner.
>
> Other "expert witnesses" called by Baker were of the same type, for the most part, and were of course not permitted to testify as experts. There are few worse evils in the field of the public health than "cancer doctors" of the Baker type.

The evidence brought forth arouses pity for the situation that can permit the poor, the sick and the ignorant to be exploited. Justification by the courts of the condemnation given by The Journal to such exploitation repays but in small measure those who have suffered. The only answer that charlatanism can make to the publication of facts is a suit for libel. In its efforts to protect the public, The Journal and the American Medical Association have been not rarely compelled to respond to such suits. Fortunately the Association is able to answer adequately. The appreciation of the medical profession and of the public is tendered to all those who have cooperated to bring to a successful issue the case of Norman Baker versus the American Medical Association.

THE REFORM OF FOOTBALL

Recently, at the end of a football season in which many lamentable fatalities and injuries were brought into national prominence, The Journal[1] protested against such an unnecessary menace to health and life. As football has had a greater incidence of fatalities and permanent injuries than that shown by any other sport, it was pointed out that the all-powerful rules committee ought to consider carefully what it could do to lessen the hazards of the game. The committee has recently issued[2] an official statement of the changes made in the code for the 1932 season and the reasons for them. On reading the details for the first time one may well recall the familiar aphorism that "confession is good for the soul."

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1. Football Fatalities, editorial, J. A. M. A. **97:** 1802 (Dec. 12) 1931.
2. The full text of the statements, by E. H. Hall and W. S. Langford, appeared in the daily papers of February 16.

The survey on which the reform program was based included a study of 49 deaths and 1,346 injuries in colleges, high schools, athletic clubs and "sand-lot groups" last season. The direct causes of some of the fatal accidents are listed as follows: improper support from interference, 1; head-on tackle, 4; unnecessary roughness, 2; player relaxed before ball was dead, 2; tackling in practice, 2; poor physical condition of the player, 6; piling on, 2. The parts of the body injured include almost every region of the exterior, in addition to ill defined "internal injuries." These vague generalizations suffice to indicate the implied culpability of sport leaders who acquiesced in the continuance of such unwholesome conditions in the athletic field until change was made imperative by the growing volume of reproach directed against those who tolerated them.

It may be ungracious to refer flippantly to some of the proposed changes. They illustrate, however, the extent to which health hazards had been developed and tolerated. With respect to the change in equipment, we learn that hereafter hard and unyielding substances used in the construction of protective devices must be covered on the outside with padding at least three eighths of an inch thick. This sounds like one of the international agreements with respect to armor plate or the construction of army tanks or other implements of war. Frankly, it means that the protective devices have become so dangerous that the antagonist is entitled to some amelioration of the dangers to which he is exposed thereby. Again, players on the defense are forbidden to strike an opponent on the head, neck or face but may use the palm of the hands to ward off or push such an opponent in trying to get to the ball or the carrier. At least some effort is to be made to avert assaults that are not tolerated even in the prize ring.

One feature of the new rules is intended to "liberalize" them by allowing a man who has been taken out to return to the game in any subsequent period. There is now no excuse for a player to conceal a minor injury or exhaustion. He can leave the game and come back again later if his coach or trainer permits. From a medical standpoint the wisdom of this may be debatable. Minor injury as well as exhaustion calls for rest and recuperation rather than for further fatigue and possible aggravation of the harm done. It scarcely requires medical exhortation to remind coaches that unless players are "in the pink of perfection" they ought not to engage in athletic combats for which the continuous presence of a physician is now urged; for the survey experts freely admit that one of the most common sources of injury comes from allowing a player who has received a minor injury or is temporarily indisposed to remain in the game. Such a man is peculiarly susceptible to serious injuries that would otherwise be trivial.

The rules committee purposes to make definite recommendations to officials and coaches as to what they can do to reduce injuries still further and also to send a letter or recommendation to high schools and unorganized teams as to ways by which they may eliminate the number of serious injuries by better supervision and by prompt, intelligent attention to trivial or minor injuries. The importance of the employment of team physicians and of careful medical supervision is thoroughly appreciated. Sports writers have already heralded an expected "fifty per cent cut in football perils." Those experts who have sponsored the new rules believe that by the changes which have been made a great forward step has been taken, not only in checking the tendency toward increasing injuries but in making the game much safer than ever before. Of course, the committee adds, there will always be accidents and injuries in any game involving physical contact and speed; but the members of the committee believe that results will show that it has been possible to accomplish much by modification of the rules alone.

"SAVER OF MOTHERS"

In a glorious tribute to Ignaz Semmelweis, published in the March issue of the *Ladies' Home Journal,* Paul de Kruif, author of Microbe Hunters, again attacks members of the medical profession as responsible for unnecessary deaths from puerperal infection. Moreover, he repeats the claim, which Newsholme and others have shown to be unwarranted, that the death rate of mothers from puerperal infection in this country is higher than that of other civilized nations. Thus, he says: "Yet today in our country—with the exception of Chile and maybe one or two others—the death rate from child bed fever is higher than that of any civilized land."

The medical profession has rendered homage repeatedly to Semmelweis and Holmes and White and others whose names are associated with the development of the knowledge that strict asepsis will prevent the vast majority of cases of puerperal infection. It is rather sad, therefore, to have de Kruif argue that any considerable number of physicians do not know asepsis or that they are too busy to practice it. His cure for the situation is apparently to urge boycott for any physician in whose practice there occurs a death from puerperal infection. No doubt this would promptly bring about a boycott of every competent obstetrician, since even under the best of conditions with the most noted of authorities in charge, cases of puerperal infection do occur. Actual epidemics have developed in well established lying-in hospitals.

In his article de Kruif cites the statistics of the Lying-In Hospital in Chicago—where the maternity building is separate from gynecology—which indicate that 25,212 mothers were delivered, with one death from puerperal infection "caught in the hospital." Yet is there any actual evidence to indicate that every maternity hospital should be a separate building and that mothers are not safe in hospitals in which the maternity wards are a part of a general hospital? Medicine knows that infection is preventable, but disease prevention is costly and the suggestion that every baby should be born in an isolated maternity hospital is utopian. As well believe in the "Brave New World" of Aldous Huxley and have all of them raised from eggs in glass jars. Physicians may prevent infection from without the body but there are cases of infection from within.

The prevention of puerperal infection will not be realized by boycotts of doctors in whose practice cases occur. At this time, obstetric care in the United States for the vast majority of women is as good as if not better than in the majority of civilized countries. Therefore, it is unfair to the medical profession of this country to make them the scapegoats for promotion of any campaign or for building interest in the eulogy of a departed scientist. The life of Semmelweis needed no such false emphasis to attract intelligent readers. The *Ladies' Home Journal,* with its vast circulation and with the appeal that it has for several million women, does much to promote sound health education in problems affecting women. It should be able to accomplish this task without exaggeration. It can do more by educating women in the necessity for prenatal care, in the nature of proper obstetrics and in scientific infant feeding than by breaking down their confidence in their physicians.

FLOW OF BILE INTO THE INTESTINE

The rôle of bile in digestion is of such importance that contributions to the knowledge of its secretion and the factors concerned with its flow into the duodenum merit attention. The recent study of Puestow[1] deserves consideration for the novel experimental technic employed as much as for the addition to the available information on the mechanism of passage of bile into the intestine. In a three-stage operation, on dogs, a gastrojejunostomy was performed and the portion of the duodenal wall containing the opening of the ductus choledochus was brought to the external surface of the body wall. Here the segment of duodenum was cut lengthwise and the edges were sutured to the surrounding skin. The pancreatic secretion passed unimpeded into the distal portion of the duodenum, which remained in normal connection with the jejunum. With this preparation it was possible to make direct visual observations not only on the flow of bile after feeding various diets but also on the patency of the orifice of the choledochus and the behavior of the duodenal mucosa thus removed from direct contact with food materials. There was no flow of bile from the choledochus during fasting when the gallbladder was intact. The orifice of the duct was usually closed and the exposed segment of duodenal mucosa remained inactive so far as peristaltic movements or secretion were concerned. Under these conditions, the pressure in the common duct was between 140 and 170 mm. of bile. It is concluded that the sphincter mechanism at the end of the choledochus in the duodenal wall is effective in regulating the flow of bile into the intestine. The response to food was characteristic. Frequently the smell of food stimulated the slow flow of bile; inevitably the ingestion of food was followed by the appearance of bile from the duct. After two or three minutes the initial flow ceased but from ten to thirty minutes later bile again appeared and continued to flow for several hours.

These observations are considered to be a support for the view that there is a psychic or reflex stimulus to the expulsion of bile into the intestine. The bile was extruded in "brief oozes and spurts" and appeared at times to be influenced by the muscular contractions of the duodenum, which became active after food was ingested, as well as by the respiratory movements. Apparently the various kinds of foods used showed little difference in their influence on the flow of bile and the activity of the duodenum. The bile was dark brown, with a high viscosity at first, but as the flow continued it became lighter in color and less viscid. In an effort to stimulate bile flow by a local effect on the papilla of Vater, solutions of sodium chloride, sodium bicarbonate, hydrochloric acid, and magnesium sulphate were applied. This procedure as well as mechanical stimulation had no effect. On the other hand, the pronounced cholagogic action of bile salts was demonstrated after intravenous injection.

Removal of the gallbladder, on the other hand, resulted in a constant flow of bile in fasting animals. Feeding had little influence on the flow except to increase the quantity to a slight degree. The bile was light in color and watery after feeding, in contrast to the dark, viscid fluid observed when the gallbladder was intact. The opening of the duct apparently was constantly patent and the pressure in the duct was only 10 to 20 mm. of bile. Removal of the gallbladder exerted no influence on the response of the exposed duodenal segment to food.

The difficulty of formulating a satisfactory description of the mechanism whereby the hepatic secretion is ordinarily transferred to the intestine has been due, in no small part, to the anatomic situation in the region of the gallbladder, choledochus, duodenum and pancreas. As a result, experimental observations have been largely of an indirect nature. It is of importance, therefore, that the direct observation of the flow of bile permitted by the experimental technic of the Rochester investigator has substantiated in large measure the results obtained by other means. Only through such varied paths of approach can there be attained assurance of the probable mechanism in the normal intact organism.

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[1] Puestow, C. B.: The Discharge of Bile into the Duodenum, Arch. Surg. 23: 1013 (Dec.) 1931.

Current Comment

EFFECT OF DIGITALIS BODIES ON THE VOMITING REFLEX

A moderately toxic dose of digitalis bodies induces attacks of vomiting, which continue and become more intense as the dose is increased. The vomiting may stop for several hours and then recur after the drug has been discontinued. However, the vomiting may cease as the drug is continued and other toxic effects appear in the form of frequent premature contractions of the heart or bigeminal rhythm. An experimental study was undertaken by Gold, Travell and Kwit[1] to determine whether it was possible by repeated injections of digitalis bodies to abolish the emetic action of the drugs, while at the same time increasing the extent of the cardiac poisoning. They injected digitoxin, ouabain and tincture of digitalis intravenously in dogs, varying the size of the dose, taking electrocardiograms at intervals before and after the injections, and in other ways observing the effects of the drugs on the vomiting reflex. Their experiments proved that after repeated doses of the digitalis bodies the vomiting reflex may be depressed so that a dose previously effective in producing vomiting becomes ineffective; the cardiac poisoning, however, continues to increase with the repeated doses, so that finally a toxic rhythm without vomiting is induced. The experiments did not give direct evidence as to the exact seat of the depression of the vomiting reflex, but this action is believed to be due to a peripheral action on the cardiac nerve fibers. It cannot be said how often such conditions are duplicated in the clinical use of digitalis bodies; however, clinicians should be cautious in relying on nausea and vomiting as a measure of the degree of cardiac poisoning. The continued use of large doses of digitalis bodies may depress the vomiting reflex and at the same time increase the intensity of the cardiac poisoning. After an initial period of vomiting, the continued administration of these drugs might even cause death without further vomiting.

ECONOMY AND THE PUBLIC HEALTH

At the present time this country is witnessing retrenchment in almost every field of human activity. The new policies are in part enforced by the exigencies of the financial situation; in no small measure they represent a return to programs of sane expenditures where orgies of unnecessary outlay had previously prevailed. The movement for economy has begun to invade the domain of governmental activities in the states as well as in the federal bureaus. It is, of course, proper that they should lead the way back to the practice of living within our national means. There may be an unfortunate fallacy, however, in the attempt to apply the pruning shears to all branches of governmental function. This applies notably to the services concerned with the public health. It sometimes happens that in times of stress the health of our people tends to suffer more than it may during periods of opulence. Hardly any one would argue that either the nation or a state has ever been unduly extravagant in expenditures for governmental hygiene. In fact, the most effective agencies in this field are even now scarcely well developed. Public opinion has not yet thoroughly grasped the usefulness of conservation through public hygiene and the fact that its cost to the taxpayer is saved many times over by the prevention of disease and death. The gains made in the elimination or curbing of such diseases as typhoid, yellow fever, malaria, smallpox and diphtheria—of the records of which the American medical profession may well be proud—must not be lost through a policy of false economy at this time. Health authorities must be enabled to perform their duties in an efficient manner. The menace of contagion, of stream pollution, of insanitary milk and food supply, of unregulated quarantine in world-wide travel must not be added to the other hardships now confronting the nation. Pointing out that reduced budgets are already carrying curtailed appropriations for public health departments, the president of the American Public Health Association, Dr. Louis I. Dublin, reminds us that it has been one of the "marvels of the last two years" that unemployment, decreased wages and lowered economic conditions have not affected health conditions and mortality. If public health is in a sense a purchasable commodity, our people should recognize expenditure for it as a wise outlay.

Association News

THE NEW ORLEANS SESSION

Cruises to Cuba, the Canal Zone and Central America

Members of the American Medical Association and their families are offered special cruises after the annual session to Cuban and Central American ports. A steamer belonging to the great white fleet of the United Fruit Company will sail from New Orleans, Saturday, May 14, at 11 a. m., for Havana, Cuba, Cristobal, Canal Zone, and Tela, Honduras, or Barrios, Guatemala, returning to New Orleans, Friday, May 27, at 8 a. m.

This trip has been arranged especially in response to the demand for a short vacation cruise. The number that can be accommodated is limited to eighty and all members desiring to join the party should make known their reservation requirements at once, as space will be assigned in the order in which applications are received. The fare, covering all expenses, varies from $140 to $220 per person, according to accommodations selected. All tickets are subject to a $5 U. S. war tax. The fares include meals and first-class stateroom accommodations for the entire cruise, steamer chairs, and shore excursion programs at the tropical ports—briefly, all expenses except gratuities, laundry, beverages and other items of a purely personal nature.

For further information and reservations, one may address the United Fruit Company, 111 West Washington Street, Chicago.

The Standard Fruit and Steamship Company will also schedule a special ship for physicians, their wives and friends. The ship will leave New Orleans on Saturday, May 14, for a twelve day trip to Havana, the Panama Canal and Puerto Cabezas, the banana port of Nicaragua. The rates vary from $97.50 to $127.50 per person, covering steamer, berth and meals. The steamer may be used as a hotel in Havana and Panama.

Several physicians have already booked. For further information address the Gardner-Coburn Tours, Bienville Hotel, New Orleans, or the Standard Fruit and Steamship Company, 224 Baronne Street, New Orleans.

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[1] Gold, Harry; Travell, Janet; and Kwit, Nathan: Depression of the Vomiting Reflex by the Digitalis Bodies, Am. Heart J. 7: 165 (Dec.) 1931.

MEDICAL BROADCAST FOR THE WEEK

American Medical Association Health Talks

The American Medical Association broadcasts on Monday from 12 noon to 12:05 p. m. over Station WBBM (770 kilocycles, or 389.4 meters) and other stations of the Columbia Broadcasting System, and on Wednesday and Friday from 2:25 to 2:30 p. m. over Station WBBM, Chicago.

The program for the week is as follows:

March 14. Safe Water for Rural Homes.
March 16. What Do You Know About That?
March 18. Milk, Poor or Pure.

There is also a fifteen minute health talk sponsored by the Association on Saturday from 11:15 to 11:30 a. m. over Station WBBM, Chicago.

The program for the week is as follows:

March 19. The Sign on Your House (continued).

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

ARKANSAS

Society News.—Dr. Sidney C. Barrow, Shreveport, La., among others, addressed the Tri-County Medical Society (Union, Columbia and Ouachita counties) in El Dorado, January 19, on "Radium and X-Ray."——Dr. Francis E. Utley, Cabot, entertained the Lonoke County Medical Society, February 10, in celebration of his fifty-first birthday.——The Arkansas County Medical Society was addressed, January 12, by Drs. Kingsley W. Cosgrove, Little Rock, and Jasper E. Neighbors, Stuttgart, on headaches and keloids, respectively.——Dr. Nona B. Ellis, Wilson, addressed the Mississippi County Medical Society, January 12, on "Management of Lobar Pneumonia."——The sixty-first anniversary of the Phillips County Medical Society was observed, January 26, in Helena; this society is said to be the oldest county society in the state.——Dr. William H. Mock, Prairie Grove, addressed the Washington County Medical Society, Fayetteville, February 2, on "Extra-Uterine Pregnancy."——Dr. Ray M. Balyeat, Oklahoma City, addressed the Hot Springs Academy of Medicine, February 2, on recent advances in allergy.

DELAWARE

Health at Wilmington.—Telegraphic reports to the U. S. Department of Commerce from eighty-three cities with a total population of 36 million, for the week ended February 27, indicate that the highest mortality rate (32.9) appears for Wilmington, and the rate for the group of cities as a whole, 12.9. The mortality rate for Wilmington for the corresponding week last year was 13.7, and for the group of cities, 14. The annual rate for eighty-three cities for the eight weeks of 1932 was 12.1, as against a rate of 14.3 for the corresponding period of the previous year. Caution should be used in the interpretation of these weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits, or that they have large Negro populations, may tend to increase the death rate.

DISTRICT OF COLUMBIA

Personal.—Dr. Daniel K. Shute, clinical professor emeritus of ophthalmology, George Washington University Medical School, received the honorary degree of doctor of science, February 22, at the bicentennial convocation of the George Washington University. Other honorary degrees also were conferred.

GEORGIA

Personal.—Dr. Frank B. Easley, Dalton, has been appointed director of district health unit number 2, composed of Catoosa, Gordon, Murray and Whitfield counties.——Dr. James W. Clements, Subligna, observed his ninety-first birthday, February 13.

Society News.—The Georgia Public Health Association was addressed at its annual meeting in Atlanta, January 22-23, among others, by Drs. Thomas H. D. Griffitts, Albany, on "Malaria Control for the Future"; Carl E. Rice, Rolla, Mo., "Trachoma Control in Georgia," and Guy G. Lunsford, Millen, "Typhoid and Sanitation." Dr. Ovid H. Cheek, Dublin, was elected president.——At the meeting of the Georgia Medical Society (Chatham County), January 12, Drs. Michael J. Egan, Jr., spoke on "Carcinoma of the Colon"; James C. Metts, "Spinal Cord Tumor with Operation and Discovery," and Thomas P. Waring, "Double Uterus with Operation." All the speakers were from Savannah.——Among speakers at the meeting of the Twelfth District Medical Society, Hawkinsville, January 22, were Drs. Major F. Fowler, Atlanta, on "Office Treatment of Venereal Diseases," and Edward B. Claxton, Dublin, "Gunshot Wounds of the Abdomen."——Dr. Amos J. Ayers, Atlanta, addressed the Fulton County Medical Society, among others, February 18, on "Clinical Laboratory Aids to Diagnosis in General Medicine."

ILLINOIS

Health Promotion Week.—A proclamation has been issued by the governor designating the week beginning April 24 and the day, May 1, as Health Promotion Week and Child Health Day, respectively. The days of the weeks will be known as Health Sunday, April 24; Nutrition Day, April 25; Dental Health Day, April 26; Immunization Day, April 27; Parental Inventory Day, April 28; Screen and Garden Day, April 29, and April 30-May 1, Child Health Day. Sunday, May 1, is officially designated National Child Health Day by the President of the United States, but the activities will take place largely on Saturday.

Chicago

Hospital News.—The first unit of the new municipal home for open cases of tuberculosis was recently opened. It is reported that about 400 patients can be accommodated in the institution, for which a building formerly occupied by the Chicago and Cook County School for Boys is being utilized, although the new unit will house only fifty.——A department of neurosurgery was established, January 20, at Presbyterian Hospital. Dr. Adrien H. P. E. Verbrugghen, formerly of Rochester, Minn., is the head of the department.

Society News.—Dr. Eugene T. Leddy, Rochester, Minn., addressed the Chicago Roentgen Society, March 9, on "X-Ray Treatment of Inoperable Carcinoma of the Breast."——Among others, Drs. Henry B. Thomas and Fred W. Hark addressed the Chicago Tuberculosis Society, March 10, on diagnosis and treatment of tuberculous joints.——The Chicago Orthopedic Society was addressed, March 11, by Drs. Eric Oldberg and Carroll C. L. Birch on "Spinal Tumors—Spasmodic Torticollis" and "Hemophilia," respectively.——Dr. Mortimer Diamond, among others, will address the Chicago Pathological Society, March 14, on "Fetal Calcification of the Myocardium."——A symposium on the public defender comprised the program of the meeting of the Chicago Academy of Criminology, March 10.

Branch Cancer Society Reorganized.—In order better to carry out the national program, the Illinois Branch of the American Society for the Control of Cancer was reorganized at a meeting, February 16, attended by representatives of the medical and dental professions, medical and dental colleges of Chicago, city and state health departments, Chicago Association of Commerce, Visiting Nurse Association and social agencies. It is intended that all approved organizations active in cancer education and research in Chicago and Illinois shall be properly represented in this branch, the purpose of which is to standardize approved methods of education, and to prepare and conduct a program in cancer education and research. Dr. Gilbert Fitz-Patrick was reappointed chairman for Illinois. Dr. William A. Evans was appointed chairman of the reorganization committee. Clarence C. Little, Sc.D., director, American Society for the Control of Cancer, as guest of honor, discussed cancer education. One of the special features of the Illinois program is the preparation of a book of pictures on lesions of the skin and mouth before and after treatment. The legends are being prepared by Drs. William E. Petersen and Francis E. Senear.

INDIANA

Society News.—Dr. Irvin Abell, Louisville, Ky., will address the Indianapolis Medical Society, March 15, on "Consideration of Some Modern Surgical Problems"; the program, March 22, will be given by Drs. William F. Clevenger and Howard B. Mettel on "Pathologic Mastoid: Complications, Diagnosis, Management" and "Diagnosis and Treatment of Allergic Conditions and Chronic Infections of the Respiratory Tract in Children," respectively. The society will be addressed, March 29, by Drs. Oscar N. Torian and Matthew Winters on "Anterior Poliomyelitis in Preparalytic Stage with Discussion of Treatment and Report of Seven Suspected Cases."

KANSAS

Undulant Fever.—Two cases of undulant fever, reported in Junction City recently, caused the city commissioners to rule that all dairymen selling milk in Junction City must have their cows tested for contagious abortion.

Society News.—William J. Burns, executive secretary, Wayne County Medical Society, Detroit, addressed the Shawnee County Medical Society, March 7, on "Modern Functions of the County Medical Society."——A motion picture on traumatic surgery was shown before the Labette County Medical Society, January 27.——The Miami County Medical Society was addressed in Paola, January 12, by Drs. George E. Knappenberger and John H. Ogilvie, Kansas City, Mo., on "Diagnosis and Treatment of Peptic Ulcer" and "Cystic Diseases of the Breast," respectively.——Dr. Robert Lee Hoffmann, Kansas City, addressed a joint meeting of the Mitchell County Medical Society and the Solomon Valley Medical Society, January 13, on "Significance of Blood in the Urine." Dr. Ray M. Balyeat, Oklahoma City, spoke on allergic diseases.——The Wyandotte County Medical Society was addressed, March 1, by Drs. Albert J. Rettenmaier on "Fibroid Tumors," and Fred E. Angle, agranulocytosis.——At a meeting sponsored by the Crawford County Medical Society, February 18, the speakers included Drs. Clinton K. Smith and A. Morris Ginsberg, Kansas City, Mo., on "Transurethral Prostatomy" and "Present Conception of the Heart in Exophthalmic Goiter," respectively.——The Sumner County Medical Society was addressed, February 18, by Dr. Paul C. Carson, Wichita, on "Forms of Encephalitis and Convulsions in Children"; Dr. George E. Cowles, Wichita, also spoke.——A joint meeting of the Wichita Dental Society and the Sedgwick County Medical Society will be addressed, March 15, by H. C. Holmes, D.D.S., and Edwin H. Terrill, Wichita, on "The Dentist of Today" and "Relation of Certain Vitamins and Minerals to Nutrition," respectively.

KENTUCKY

Bills Introduced.—S. 434 and H. 817 propose to make it unlawful for public school authorities to permit minor students to be subjected to either medical or physical examinations over the written objections of the person or persons having legal custody of such minors, if such objections are accompanied by written statements of licensed physicians certifying as to the students' physical condition and good health.

LOUISIANA

Hospital News.—The Mary J. Walker unit of the Greenwell Springs Sanatorium, Zachary, has recently been completed. The new building has a capacity of 100 beds and has been made possible through a bequest of the late Mrs. Mary J. Walker, Lake Province. The sanatorium is under the jurisdiction of the Louisiana State Tuberculosis Commission.

University News.—A three months' course in tropical medicine was begun, March 1, at the Tulane University of Louisiana School of Medicine, New Orleans, for public health officers, physicians who expect to practice in the tropics, and selected senior medical students.——Dr. Charles A. Bahn has been appointed professor of ophthalmology in the graduate department of the Louisiana State University Medical Center.

Institute on Tuberculosis.—A case finding institute on tuberculosis was held in New Orleans, February 17-18, by the Tuberculosis and Public Health Association of Louisiana in cooperation with the state board of health. The program included a demonstration of the technic of tuberculin testing and a study of x-ray plates, lectures and round table discussion. Among the speakers were Drs. Kendall Emerson, New York, William C. White, Washington, D. C., and Horton R. Casparis, Nashville, Tenn.

MASSACHUSETTS

Personal.—Dr. Augustus Thorndike, Jr., Boston, has been appointed surgeon in the department of hygiene, Harvard University Medical School; he will also direct the medical activities in athletics. Dr. Thorndike will succeed Dr. Thomas K. Richards, whose resignation will become effective in the fall.

Society News.—The New England Pediatric Society was addressed, February 26, by Drs. Lewis Webb Hill, Boston, on "The Eczema Problem," and James S. Plant, Newark, N. J., "Promise of Psychiatry."——"Certain Problems in Diseases of Women" was the subject of Dr. Henry T. Hutchins, Boston, before the Belmont Medical Society, February 26.——Dr. Howard Moore, Boston, addressed the New England Physical Therapy Society, February 17, on "Treatment of Shoulder Conditions by Physical Therapy."——At the meeting of the New England Roentgen Ray Society, February 19, Drs. George Levene, Norwood, and William D. Reid, Boston, spoke on "Anatomic and Functional Diagnosis of Heart Disease by Means of the Roentgen Ray."——Dr. Theodore C. Greene, Peiping, China, addressed the Boston Medical History Club, February 15, on "Ancient and Modern Practice of Medicine in China: Medical Experiences in City and Country," and Dr. Arthur B. Lyon, Boston, "Daniel Whistler and the First Treatise on Rickets, 1645."——"Medical Publicity by Organizations and Individual Physicians" was the general topic discussed by Drs. Morris Fishbein, Chicago, and Iago Galdston, New York, March 10, before the New England Medical Council at the Boston Medical Library.

MICHIGAN

University News.—A chair of internal medicine is to be established at the Detroit College of Medicine and Surgery by the will of Dr. James Cleland, Jr. The bequest to the college becomes effective after the death of Dr. Cleland's wife.

Personal.—Dr. Hugo Erichsen, Birmingham, observed his fiftieth anniversary in the practice of medicine, March 2.——George B. Darling, Detroit, has been appointed associate executive director of the W. K. Kellogg Foundation, effective February 15.——Dr. William Arkell Browne, Baltimore, has been appointed health officer of the recently organized Oceana-Lake-Newaygo health unit, with headquarters at White Cloud.

Detroit's Swimming Pools.—In 1931, 78.2 per cent of Detroit's swimming pools were free from bacteria, as compared with *1925* when only *27* per cent of the samples showed a zero bacterial count. In 98.9 per cent of the samples of swimming pool water taken during 1931, B. coli was not found. Ford Hospital pool heads the list of pools not showing organisms of the B. coli group for a period of more than two years; it has been free from these organisms for more than five years. The number of pools in operation in the city in 1931 was more than double the number maintained in 1925.

Child Welfare Conference.—The Detroit District Extension of the White House Conference for Child Care and Protection will be held in Detroit, March 18-19, with headquarters at the Statler Hotel. The purposes of the conference will be to disseminate information on medical service, public health and administration, and the education and training of the handicapped; to present Detroit's current efforts to meet the requirements of the Children's Charter, and to foresee whatever may be revealed as the next steps in this matter. Assisting in the conference will be the Wayne County Medical Society, the board of health, child care agencies, and the education department.

Courses in Hygiene and Public Health.—Special week-end public health institutes in connection with the summer session at the University of Michigan will begin June 24 and continue through July 30, the week-end of July 1 being excluded. All branches of interest to public health workers will be emphasized. The speakers included in the program are Dr. Iago Galdston, New York; Mr. C. C. Young, Lansing; Drs. Mazyck P. Ravenel, Columbia, Mo.; Clyde C. Slemons, Lansing; Eugene L. Bishop, Nashville, Tenn.; William W. Peter, New York; Henry F. Vaughan, Dr.P.H., Detroit, and Dr. William J. V. Deacon, Lansing. The fee is $3 for each week-end session or $15 for the complete course. The regular summer session courses will begin June 27 and continue through August 5. Subjects under these courses will include methods and materials in health education, public health law and administration, administration and organization in public health nursing, and mental hygiene. For further information address Nathan Sinai, Dr.P.H., acting director, division of hygiene and public health, University of Michigan, Ann Arbor.

Society News.—Dr. Irving W. Greene, Owosso, among others, addressed the Shiawassee County Medical Society, February 11, on "Diagnosis and Treatment of Diabetic Acidosis and Coma"; Dr. Reed W. Teed spoke on "Malnutrition of Infants."——The speakers before the Washtenaw County Medical Society, February 18, included Dr. Colin C. McRae, Ann Arbor, on "Experimental Observations on Appendiceal Obstructions."——At a meeting of the Ionia-Montcalm Medical Society, February 9, in Belding, Dr. Alexander M. Campbell, Grand Rapids, spoke on "Management of Certain Obstetrical Complications"; Dr. William J. Butler, Grand Rapids, "Intravenous Urography," and Phillipp Northrup, D.D.S., "Reflex Disturbances of Impacted Teeth."——The Calhoun County Medical Society was addressed, March 1, by Drs. Louis J.

Hirschman, Detroit, and Awra A. Hoyt, Battle Creek, on "Colonic Dysfunction versus Colitis" and "Diphtheria Immunization," respectively.——The clubrooms and library of the Kent County Medical Society were recently opened with a dinner and housewarming. The new quarters are on the third floor of the Medical Arts Building in Grand Rapids. Among other speakers, Dr. Frederick C. Warnshuis gave a history of the society since 1902.——Dr. Angus McLean, Detroit, addressed the West Side Physicians Association, February 18, on "Veterans' Medical Care."——John H. Muyskens, Sc.D., Ann Arbor, addressed a joint meeting of the Wayne County Medical Society and Grace Hospital, March 8, on "Speech Defects—Cause, Prevention and Correction."

MINNESOTA

Personal.—Dr. Hugh Cabot, Rochester, will address the Abernethian Society, St. Bartholomew's Hospital, London, England, April 14, on "Further Travels with the North American Indians."——Dr. Joseph A. Roy was recently elected mayor of Red Lake Falls.

Violation of Basic Science Law.—Mitchell Jurdy, listed in the 1931 Minneapolis city directory as a naturopathic physician, pleaded guilty to practicing healing without a basic science certificate, February 19. Judge Reed of the district court, Minneapolis, sentenced Jurdy to one year in the city workhouse. The sentence was stayed for one year, pending the good behavior of the defendant and his compliance with the medical laws of the state. Jurdy treated a patient suffering with epilepsy, it was claimed. The father of the patient testified that they had met Jurdy at the "Riley Long Life Health Club," where Jurdy lectured. On the day of the sentence, Jurdy told a representative of the state board of medical examiners that he has severed all connections with the naturopathic organization.

NEW JERSEY

Bill Introduced.—S. 204 proposes to accord physicians treating persons injured in accidents, liens on any judgments or settlements obtained by the injured persons by reason of their injuries.

Society News.—Drs. Philip J. Lipsett and William G. Doran, New York, addressed the Hudson County Medical Society, Jersey City, March 1, on "Acute Intra-Abdominal Diseases and Their Treatment" and "Early Symptoms of Congenital Dislocation of the Hip Joint," respectively.——Drs. Arthur First, Philadelphia, and Arthur L. Stone, Camden, addressed the Camden County Medical Society, Camden, March 1, on "Newer Concepts of the Biologic Tests for Pregnancy" and "The Profession's Responsibility in Matters of Public Health," respectively.——Dr. Grafton Tyler Brown, Washington, D. C., addressed the Atlantic County Medical Society, Atlantic City, March 11, on "Seasonal Hay Fever."——Mr. F. Edward Whitehead, River Edge, has been appointed executive secretary of the Bergen County Medical Society, a newly created position. He began his work, March 1.——Drs. Morris Fishbein, Chicago, and Ira S. Wile, New York, addressed a joint meeting of the Bergen and Passaic county medical societies in Paterson, March 8, on "The Changing Nature of Medical Practice" and "Child Behavior as a Medical Problem," respectively.

NEW YORK

Bills Introduced.—S. 1217 and A. 1587, to amend the law authorizing county and city boards of health to provide facilities for the treatment of venereal diseases, propose (1) to appropriate $250 toward the cost of initial installation of each such clinic as may be established by law and (2) to authorize the payment by the state of one half of the annual cost of the maintenance and operation of each such clinic. S. 1283 and A. 1546 propose to accord liens to hospitals treating persons injured in accidents, on any judgments or settlements obtained by such persons by reason of their injuries. S. 1343 proposes to create a board of hair dressers and cosmetologists and to regulate the practice of hair dressing and cosmetology. S. 1469, to amend the workmen's compensation act, proposes apparently to omit that provision of the act permitting an injured employee or an insurance carrier to select physicians to be present at any physical examination of an employee ordered by the industrial board or by the industrial commissioner. S. 1470 and A. 1725, to amend the workmen's compensation act, propose to permit an injured employee to elect to be treated at his employer's expense in a charitable or municipal hospital. S. 1468 and A. 1726, to amend the workmen's compensation act, propose to define "charitable and municipal hospitals" as referred to in S. 1470 and A. 1725. A. 1729 proposes to create a board of dental technicians and to regulate the licensing of master dental technicians and the operation of dental laboratories. A. 1733 proposes to provide that all cosmetics be labeled to show that they are not injurious, the name of the compounders and the dates of compounding, and to require manufacturers of cosmetics to file with the state public health department certain statements as to their formulas.

New York City

Sixth Harvey Lecture.—Dr. Leslie T. Webster, Rockefeller Institute, will deliver the sixth Harvey Society Lecture at the New York Academy of Medicine, March 17, on "Experimental Epidemiology." Officers of the society recently elected are as follows: Drs. Alfred F. Hess, president; Haven Emerson, vice president; Thomas M. Rivers, treasurer, and Edgar Stillman, secretary.

Promotions at New York University.—Four members of the staff of New York University and Bellevue Hospital Medical College were promoted in February as follows:

Dr. Frank C. Combes, Jr., to assistant clinical professor of dermatology and syphilology.
Dr. Henry C. Falk to clinical professor of gynecology.
Dr. Onslow A. Gordon, Jr., to associate professor of gynecology.
Dr. Francis W. Sovak to clinical professor of gynecology.

Personal.—Dr. Max Einhorn was the guest of honor at a dinner celebrating his seventieth birthday, January 9, given at the Hotel Astor by the staffs of the Lenox Hill and Postgraduate hospitals and members of the German Medical Society and the International Medical Club of America.——Dr. William B. Coley, chief surgeon of the New York Central Railroad, retired, January 1, after thirty-five years of service and was succeeded by his son, Dr. Bradley L. Coley.

Society News.—Drs. Albert A. Epstein, William Barclay Parsons, Jr., and Charles Gordon Heyd addressed the Medical Society of the County of New York, February 29, on diseases of the thyroid gland.——Drs. George W. Crile, Cleveland, and Edwin A. Riesenfeld addressed the Harlem Medical Association, March 2, on "Factors Determining the End-Results of Surgical Treatment of Hyperthyroidism" and "Postural Treatment for Intracranial Hemorrhage in the New-Born," respectively.——Drs. Herman Goodman and Herbert S. Abel, among others, addressed the New York Physical Therapy Association, March 2, on "Hot and Cold Quartz Tubes: Reaction of the Skin in Health and Disease."——A special meeting of the New York Academy of Medicine under the auspices of its committee on public health relations and the Committee on Costs of Medical Care was held, March 9, with the following speakers: Drs. Richard M. Smith, Boston, "Outstanding Facts from the Studies of the Committee on Costs of Medical Care"; Allon Peebles, Ph.D., Washington, D. C., "Unevenness of Distribution of the Costs of Medical Care," and Dr. Nathan B. Van Etten, "Social and Economic Problems Facing the Medical Profession."

OHIO

Lectures on Otology.—Dr. Erich Ruttin, Vienna, Austria, will give a series of lectures and demonstrations in otology in Cincinnati, March 21-25. Those interested may receive further information from Dr. Harris H. Vail, 919 Carew Tower, Cincinnati.

Personal.—Dr. Charles H. Creed, head of the bureau of examination and classification at the Ohio State Penitentiary, Columbus, has been appointed superintendent of the Athens State Hospital to succeed the late Dr. John H. Berry.——Drs. Ralph W. Staley, Ernest O. Swartz and Henry B. Freiberg were made assistant professors in the department of urology at the University of Cincinnati School of Medicine in February.

University News.—Dr. Esmond R. Long, professor of pathology, University of Chicago, delivered the annual lectures in pathology at the Ohio State University College of Medicine, February 26. The first lecture was given before the faculty and student body on "A Survey of the Origins of Modern Pathology" and the second to the faculty, the students and the medical profession of Columbus on "The Exudative Phenomena in Tuberculosis."

Society News.—Drs. Fred W. Rankin and Byrl R. Kirklin, Rochester, Minn., addressed the Toledo Academy of Medicine, February 5, on "Surgical Treatment of Cancer of the Colon," and "Roentgenologic Diagnosis of Malignant Lesions of the Colon," respectively. The academy held an all-day clinic at the Lucas County Hospital, March 4, with Dr. Pol N. Coryllos, New York, as guest demonstrator on operative technic in chest conditions. Dr. Coryllos addressed the general meeting of the academy on "Causes and Prevention of Cardiopulmonary Complications in Chest Surgery After Tuberculosis."——Dr. Mont

R. Reid, Cincinnati, addressed the Summit County Medical Society, Akron, March 1, on "Surgery of the Sympathetic Nervous System."——Dr. Herbert Fox, Philadelphia, addressed the Cincinnati Academy of Medicine, March 7, on "Arteriosclerosis: Its Causation and Significance According to Comparative Anatomy." The Cincinnati Oto-Laryngological Society will meet with the specialty section of the academy, March 28, to hear George Oscar Russell, Ph.D., Columbus, give an address on "New Light on Interior Laryngeal Function Through Sound Movies Thereof."——Dr. Vernon C. Rowland, Cleveland, addressed the Montgomery County Medical Society, Dayton, March 4, on "Differential Diagnosis of Chronic Colitis."

OKLAHOMA

Society News.—At a joint session of the Woods and Alfalfa county medical societies, Alva, January 26, speakers were Drs. Philip M. McNeill on "Nontuberculous Infections of the Lungs"; Henry H. Turner, "Interrelationship of Endocrinology and Neurology," and Horace Reed, "Differential Diagnosis of Acute Appendicitis." All speakers were from Oklahoma City.

OREGON

Society News.—Mr. Fred Ross, attorney, addressed the Portland City and County Medical Society, March 2, on "The Workmen's Compensation Act in Relation to the Medical Profession." At a joint meeting with the Portland District Dental Society, February 17, speakers were Drs. Homer P. Rush, on "Systemic Manifestations of Dental Focal Infection"; Ralph A. Fenton, "Manifestations of Dental Sepsis Relative to Eye, Ear, Nose and Throat," and Byron E. Loomis, D.D.S., "Oral and Dental Diagnosis."——The Portland Medical Hospital took possession of a new $100,000 building, January 13; the present capacity is seventy-five beds, to which it is planned to add twenty in the future.

PENNSYLVANIA

State Society's Essay Prize Awarded.—Dr. William A. Lell, intern at the Graduate Hospital, University of Pennsylvania, Philadelphia, received a prize of $100 in a contest sponsored by the Medical Society of the State of Pennsylvania for the best essay on "How to Diminish Deaths from Cancer in Pennsylvania." This contest was inaugurated early in 1931 and was open to any intern on duty in the state, Dec. 31, 1931. A similar contest was held for nurses with a prize of $50 offered for an essay on "How a Nurse Can Help Diminish Deaths from Cancer in Pennsylvania." The contests were the climax of several years' endeavor on the part of the society's commission on cancer to build up in the minds of those teaching young physicians and nurses in hospitals the value of their opportunity for impressing the need for early recognition of the signs of cancer. Dr. Lell's essay presented a plan for the establishment of six cancer clinics to be maintained by the commonwealth, where any person might obtain examination to learn whether he is suffering from the disease.

Philadelphia

Anniversary Meeting.—The Woman's Medical College of Pennsylvania held an open scientific meeting at the college building, March 11, marking the eighty-second anniversary of its founding. Dr. Edward B. Meigs, Washington, D. C., was the speaker of the evening on "The Nutritive Value of Milk."

Robert Koch Anniversary.—The section on medical history of the College of Physicians of Philadelphia will hold its stated meeting, March 14, in cooperation with the Henry Phipps Institute, the Philadelphia Health Council and Tuberculosis Committee and the Philadelphia Association of Tuberculosis Clinics to commemorate the fiftieth anniversary of the discovery by Robert Koch, March 24, 1882, of the tubercle bacillus. Addresses were made by Drs. Henry R. M. Landis, on "Reception of Koch's Announcement in the United States"; Theobald Smith, Princeton, N. J., "Koch's Views on the Stability of Species Among Bacteria"; Lawrason Brown, Saranac Lake, N. Y., "What Koch Meant to Tuberculosis," and Damaso de Rivas, "Personal Reminiscences of Robert Koch."

Society News.—Dr. Henry K. Pancoast addressed the Philadelphia Roentgen Ray Society, March 3, on "Roentgenological Studies of Tumors of the Gastro-Intestinal Tract."——Among speakers before the Obstetrical Society of Philadelphia, March 3, were Drs. Clifford B. Lull, who gave "A Preliminary Report on the Use of Barbiturates with Ether by Rectum," and Charles H. Frazier and Henry F. Ulrich, "Thyrotoxicosis Complicating Pregnancy."——Dr. Edward F. Corson, delivered the postgraduate seminar of the Philadelphia County Medical Society, March 4, on "Differential Diagnosis of Syphilitic and Nonsyphilitic Eruptions." Dr. Martin E. Rehfuss gave the lecture, March 11, on "Diagnosis and Treatment of Colon Infections."——Dr. Joseph C. Doane addressed the Philadelphia Medical Examiners' Association, March 7, on "Vascular Diseases of the Extremities and Their Relation to Insurance."——Drs. Robert H. Ivy and Lawrence Curtis addressed the Philadelphia Academy of Surgery, March 7, on "Salivary Duct Calculi," and Dr. Joseph L. Magrath, Upper Darby, on "Surgical Shock."——A symposium on sinusitis in children was held before a joint meeting of the Philadelphia Pediatric Society and Philadelphia Laryngological Society, March 8, with Drs. John D. Donnelly, Bala-Cynwyd, Herman B. Cohen, Willis F. Manges and Gabriel Tucker as participants.——Drs. Harvey M. Watkins, Polk; Mary M. Wolfe, Laurelton, and Robert A. Matthews presented a symposium on mental deficiency before the Philadelphia Psychiatric Society, March 11.——Dr. Seth A. Brumm was elected president of the Philadelphia Association of Tuberculosis Clinics at its meeting, February 24. Dr. David R. Lyman, Wallingford, Conn., addressed the society on the tuberculosis death rate as affected by the industrial depression.

SOUTH CAROLINA

Hospital Burned.—Fire recently destroyed completely the Majority Hospital for Negroes at Union. An effort is being made by both white and colored citizens to restore the hospital as soon as possible. Believing that physicians or hospitals in other parts of the country may have equipment for wards and operating room which may have been discarded for newer equipment, but is in good condition, those interested have requested donation of such material for the use of the hospital. Mr. Allan Nicholson, a newspaper editor of Union, is in charge of the movement to restore the hospital, and correspondence may be addressed to him.

TEXAS

Society News.—Drs. William M. Crawford and Walter B. West addressed the Tarrant County Medical Society, Fort Worth, February 2, on lymphosarcoma of the mediastinum and injuries to the head, respectively.——The Northwestern Texas District Medical Society met, March 8, in Dallas. Among the speakers announced were Drs. Joseph F. McVeigh and William S. Horn, Fort Worth, on "Malignant Endocarditis" and "Angina Pectoris Associated with Pernicious Anemia," respectively, and George M. Underwood and Arthur J. Schwenkenberg, Dallas, on "Diagnosis and Treatment of Jaundice" and "Nervous Breakdown Precipitated by Recent Economic Crisis," respectively.——Drs. Howard R. Dudgeon, Waco, and Marion M. Brown, Mexia, addressed the Navarro County Medical Society, Corsicana, January 4, on "Cancer of the Colon" and "Spinal Anesthesia," respectively.——Dr. Cleve C. Nash, Dallas, addressed the Harris County Medical Society, Houston, January 20, on diagnosis and treatment of brain tumors.——Drs. George Raworth Williams and James Shirley Sweeney addressed the Dallas County Medical Society, January 28, on "Kidney Pain" and "Pancreatitis and Diabetes Mellitus," respectively. A symposium on cancer was presented, March 10, by Drs. James M. Martin, John L. Goforth and Charles L. Martin.

UTAH

Annual Registration Due April 1.—All practitioners of medicine and surgery holding licenses in Utah are required to register annually on or before April 1, with the department of registration, and to pay a fee of $3. If a licentiate neglects to register within from ninety days to six months after April 1, his license can be revoked and will be reinstated thereafter only on his paying the delinquent registration fees and an additional year's fee as a penalty.

VIRGINIA

Bill Introduced.—H. 256 proposes to create a division of barber examiners in the state health department and to regulate the practice of barbering.

WISCONSIN

Board to Consider Reciprocity Applications.—The Wisconsin State Board of Medical Examiners will hold a special meeting, April 6, at the Hotel Schroeder, Milwaukee, to consider applications for licenses by reciprocity only.

Society News.—Drs. Campbell C. Edmondson, Waukesha, and Russell M. Kurten, Racine, addressed the Racine County Medical Society, January 21, on diabetes and "Physiology of the Sex Cycle," respectively. County Judge J. Allan Simpson spoke on "Admission of Patients to County Hospitals as County Charges."——Dr. Dallas B. Phemister, Chicago, addressed the Medical Society of Milwaukee County, February 12, on gallstones.——Dr. Owen H. Wangensteen, Minneapolis, made an address on "Diagnosis and Treatment of Acute Intestinal Obstruction" before the Milwaukee Academy of Medicine, February 16.——Dr. Glenn J. Greenwood, Evanston, Ill., addressed the Outagamie County Medical Society, Appleton, February 23, on "Middle Ear Infections in Children."

WYOMING

Annual Registration Due April 1.—All practitioners of medicine and surgery licensed to practice in Wyoming are required by law to register on or before April 1, with the secretary of the board of medical examiners, and to pay a fee of $2.50. If a licentiate fails to pay the fee within three months after April 1, his license can be annulled, and if annulled it will be restored to him only on his paying the stated fee, plus $5 as a penalty.

GENERAL

Society News.—Dr. John F. D. Cook, Langford, S. D., was elected president of the Northwest Regional Medical Conference at the annual meeting in St. Paul, January 24, and Vernon D. Blank, Des Moines, was elected secretary. The states included in this group are Minnesota, Wyoming, Ohio, Illinois, Iowa, Wisconsin, Nebraska, North Dakota and South Dakota.——Dr. Alexander B. Dancy, Jackson, Tenn., was named president-elect of the Mid-South Postgraduate Medical Assembly at its meeting in Memphis, February 11. Dr. Lowry H. McDaniel, Tyronza, Ark., became president. Memphis was selected as a permanent meeting place.——The Radiological Society of North America has set the date of its next meeting for November 28-December 2, in Atlantic City.

Annual Meeting of College of Physicians.—The sixteenth annual clinical session of the American College of Physicians will be held in San Francisco, April 4-8, with general headquarters at the Palace Hotel, and under the presidency of Dr. Solon Marx White, Minneapolis. This is the first meeting of the college to be held on the Pacific Coast, and it is planned to present through clinics and demonstrations the disease entities which are more or less peculiar to western America. To this group belong coccidioides, undulant fever, relapsing fever, Rocky Mountain spotted fever, tularemia, amebiasis, poisoning from spider bite, mussel poisoning and botulism. Programs have been arranged for those interested in the fields of cardiovascular, gastro-intestinal, endocrine diseases and diseases of the hematopoietic system. There will be symposiums on diseases of the kidney, tropical diseases and pulmonary diseases, and, two days during the session, clinicopathologic conferences will be held. Wednesday, April 6, there will be a symposium dealing with the "Medical History of Western America," including papers on medicine in Mexico, Peru, early California and in the Northwestern states, and plans for Friday call for a symposium on the "Anatomical Traditions of the Renaissance and Their Relation to the Modern Teaching of Anatomy." A symposium on "Ten Years' Experience with Insulin" will also be held. Various exhibits of rare medical prints and collections are being arranged. An extensive program of scientific papers will be presented by men prominent in their respective fields. The annual banquet of the college will be April 7. Dr. Arthur L. Bloomfield, San Francisco, will act as toastmaster, and Dr. Charles J. Singer of the University of London, London, England, will deliver an address on "A Great Country Doctor."

Medical Bills in Congress.—*Changes in Status:* S. 695 has been recommitted to the Senate Finance Committee. The bill, proposing a reduction in payments to veterans under the Disabled Emergency Retirement Act while they are being maintained in institutions by the Veterans' Administration, had previously been favorably reported to the Senate. S. 572, the Jones rural health, and maternity and child hygiene bill, has been ordered favorably reported, with amendment, by the Senate Commerce Committee, by a vote of 12 to 9. The proposed amendment strikes out all after the enacting clause and inserts in lieu thereof the provisions of a bill introduced by Senator Jones during the Seventy-First Congress, S. 255, providing for the promotion of the health and welfare of mothers and infants. S. 1975 has been favorably reported to the Senate, without amendment, to amend an act entitled "An Act to recognize the high public service rendered by Major Walter Reed and those associated with him in the discovery of the cause and means of transmission of yellow fever," by including Roger P. Ames among those honored by the act. H. R. 4577, proposing to extend hospital and home facilities to veterans of the Confederate Army and Navy, has been recommitted to the House Committee on Military Affairs. The bill had previously been favorably reported to the House. *Bills Introduced:* S. 3769, by Senator King, Utah, to amend the Disabled Emergency Officers' Retirement Act by requiring beneficiaries to have served six months or more as members of the military or naval establishments, between April 6, 1917, and Nov. 11, 1918, and by requiring that the disability for which retirement is sought shall have been incurred as a result of war service between April 6, 1917, and Nov. 11, 1918. S. 3849, by Senator Trammell, Florida, and H. R. 9969, by Representative Green, Florida, to erect a 200 bed addition to the veterans' hospital, Lake City, Fla. S. 3853, by Senator Bingham, Connecticut, to regulate interstate and foreign commerce in poisonous volatile substances intended for household consumption. S. 3865, by Senator Bulkley, Ohio, to provide treatment in marine hospitals for persons belonging to the Steamboat Inspection Service whose chief duties are inspection of vessels. S. 3884, by Senator Capper, Kansas, to provide for the further development of vocational education in the several states and territories. H. R. 9450, by Representative Johnson, Oklahoma, to provide additional compensation for veterans entering service prior to Nov. 11, 1918, who suffered the loss of the "use of a creative organ or one or more feet or hands as the result of personal injury received or disease contracted in active service in line of duty after April 6, 1917, and before discharge from such service." H. R. 9485, by Representative Harlan, Ohio, to authorize construction at the Veterans' Administration Home, Dayton, Ohio. H. R. 9838, by Representative Hess, Ohio, to construct a veterans' hospital and regional office in Cincinnati. H. R. 9890, by Representative Thatcher, Kentucky, to construct a hospital at Fort Knox, Kentucky. H. R. 10042, by Representative Connery, Massachusetts, to recognize the high public service rendered by soldiers who volunteered and served in trench fever experiments in the American Expeditionary Forces. H. R. 10052, by Representative Seiberling, Ohio, to provide for federal cooperation with the several states and territories in the physical restoration, education, vocational guidance and vocational education of "any person below the age of twenty-one years who by reason of physical defects or infirmities, whether congenital or acquired by accident, injury, or disease, are or may be expected to be totally or partially incapacitated for participation in the educational and vocational activities expected of a normal person."

PHILIPPINE ISLANDS

Campaign for Eyesight Conservation.—An active campaign for the correction of eye defects and conservation of vision was recommended to the house of delegates of the Philippine Islands Medical Association in December by a committee on conservation of vision created by the house in 1927. Statistics collected by the committee showed that blindness and defective vision are prevalent among Filipinos and that in many cases these handicaps could be prevented by proper care. In one study of about 1,800 cases of blindness, it was found that 27 per cent were caused by cataract and 25 per cent by physical injuries with subsequent infections and improper treatment. Of 7,996 industrial accidents reported to the labor office of the islands, 222 involved the eyes. It was said that the office recommended the use of goggles but that there is no law requiring it. The committee recommended, as features of its campaign, popular education, strict enforcement of regulations concerning communicable diseases, establishment of more eye clinics in the provinces, instruction of medical personnel and encouragement of all health agencies to take part in the campaign. Among other activities the committee has sponsored legislation to require physicians, nurses and midwives to use preventive measures against ophthalmia neonatorum, but this is still pending in the legislature. Dr. Antonio S. Fernando is chairman of the committee, and the members are Drs. Rafael Villafranca and Conrado D. Ayuyao.

CANADA

Personal.—Dr. Jabez Henry Elliott has been appointed professor of the history of medicine at the University of Toronto to succeed Dr. John T. Fotheringham, who retired in June, 1931. For the past six years Dr. Elliott has been a special lecturer in medicine at the university.——A scroll of recognition was recently presented to Dr. Velyien Ewart Henderson, professor of pharmacy and pharmacology, University of Toronto Faculty of Medicine, by the International Anesthesia Research Society in appreciation of his work in anesthesia.——Dr. Rosario Fontaine has been appointed professor of medical jurisprudence and toxicology at the University of Montreal Faculty of Medicine to succeed the late Dr. G. Wilfrid Derome.

Saskatchewan Cancer Clinics.—Two clinics for the diagnosis and treatment of cancer have recently been opened in Saskatchewan, at the Regina General Hospital and the Saskatoon City Hospital, said to be the first of their kind in the dominion. This action is part of a concerted attack on cancer in the province, which began with the appointment of a cancer commission in June, 1930, under authority of legislation passed in the previous session of the legislature. This commission was empowered to carry on a campaign of public education for control of cancer, to investigate the problem in the province, to establish diagnostic clinics and to buy radium to the amount of $115,000 (The Journal, April 11, 1930, p. 1332). Admittance to the clinics may be secured only through recommendation by a medical practitioner. A fee of $10 will be charged for the examination of a patient and other fees will be payable to the hospital for hospital service, to the commission for radiotherapy and to the surgeon for any surgical measures. Staffs will be made up of the chiefs of the various departments of the hospital services, it was announced.

Lectures at Toronto.—A series of lectures of special interest to the practitioner has been presented during the winter months by the Academy of Medicine of Toronto. Following are the speakers and their subjects:

Dr. Goldwin W. Howland, "The Pituitary as an Endocrine Gland."
Dr. Kenneth G. McKenzie, "The Pituitary as a Brain Tumor."
Dr. Alan G. Brown, "Practical Considerations of Disturbances of the Thyroid Glands in Infancy and Childhood."
Dr. Joseph A. Gilchrist, "The Challenge of the Pancreas."
Dr. Francis J. O'Leary, "Ovarian and Placental Therapy."
Dr. Ray F. Farquharson, "Treatment of Anemia and Associated Conditions by Liver and Extracts of Liver and Stomach."
Dr. Cecil O. Young, "Thyroid Gland: Medical Aspect; Hyperthyroid Conditions."
Dr. Andrew Almon Fletcher, "Hypothyroidism and Low Metabolic Rates."
Dr. Harold G. Armstrong, "Thyroid Gland; Surgical Aspect."

FOREIGN

Centenary of British Medical Association.—The centenary meeting of the British Medical Association will be held in London, beginning with the annual representative meeting, July 21. The annual general meeting will be held July 25, and the incoming president, Lord Dawson of Penn, will give his inaugural address, July 26. The scientific sessions will be held, July 27-29. The centenary dinner of the association will take place, July 28. There is to be a pilgrimage to Worcester on Sunday, July 24, to unveil memorials to Sir Charles Hastings, founder of the association (The Journal, Dec. 5, 1931, p. 1718). Dr. William George Willoughby, Eastbourne, is the present president.

Dawson Williams Prize to Sir Robert Jones.—The second award of the Dawson Williams Memorial Prize will be made to Sir Robert Jones in recognition of his work in pediatrics in relation to orthopedics. With the consent of the council of the British Medical Association, the presentation will be made by the president of the association on the occasion of his address at the annual meeting in London, July 26. The prize was established in 1928 by friends of the late Dawson Williams, editor of the *British Medical Journal*. It is awarded every two years or at longer intervals, at the discretion of the trustees, for work done in pediatrics.

Medical Associations in China Merge.—Plans for the merging of the National Medical Association of China and the China Medical Association were announced in the *Chinese Medical Journal* for January. Before the Japanese invasion of Shanghai, it was planned to hold a joint conference in Shanghai, April 6-13, to effect the amalgamation. The China Medical Association, which was formerly the China Medical Missionary Association, was founded in 1886 and confined its activities principally to American and European medical missionaries. The National Medical Association, on the other hand, was founded in 1915 by Chinese practitioners trained in western medical colleges. The new association will be known as the Chinese Medical Association, and its official organ will be the *Chinese Medical Journal*, which is a recent combination of the former *China Medical Journal* and the *National Medical Journal of China*.

Deaths in Other Countries

Gregorio Mendizabal, known as the dean of Mexican physicians, died, February 19, in Mexico City, aged 86. Dr. Mendizabal made special studies of influenza and yellow fever. He had represented Mexico at various Pan American and international medical and public health meetings in the United States and Europe.

CORRECTION

"Remote Results in Treatment of Gastroduodenal Ulcers."—Dr. Jean-Charles Roux, editor in chief of the *Archives des maladies de l'appareil digestif et des maladies de la nutrition*, writes that the research on gastroduodenal ulcer, described in the Paris letter in The Journal, January 23, page 330, was initiated by the Society of Gastro-Enterology of Paris and that the complete reports are to be found in the periodical which he edits.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Feb. 6, 1932.

The Descent of the Testis

Continuing his lectures at the Royal College of Surgeons, Sir Arthur Keith said that embryology had entered on a new era. Eighty years ago Owen taught that nature, in fashioning the animal body, worked to plan, much as a builder obeys an architect's specifications. Then came Darwin, who showed that every embryo was its own architect—that the powers which shaped the unfolding embryo were resident in its developing tissues. But while accepting Darwin's teaching, embryologists still tried to explain developmental events as the result of mechanical happenings—of foldings and bendings. Only recently had they escaped from this, when it was discovered that parts of a living embryo could be detached and maintained alive and that certain parts contained growth-controlling substances by which they can compel neighboring tissues to cooperate in producing a new and completed structure. Scarcely a surgical operation had not its parallel in the early stages of development. Extensive plastic operations were carried out, parts were shifted, altered in shape or entirely removed. In all these operations the tissues themselves played the part of surgeon, and there were occasional failures.

One of the commonest developmental devices was the production of pockets or hernias. A hernia is produced in the later months in each groin of a human fetus. The extrusion of the testis is, from an evolutionary point of view, a late event, and it occurs in most mammals. In some it descends only in the rutting season and returns to the abdomen after it. In lower vertebrates (birds, reptiles) it remains permanently within the abdomen. We are still uncertain as to the reason for the genital exodus. If it does not occur, the testis rarely becomes perfectly functional and usually atrophies. The evidence of comparative anatomy suggests that the atrophy is due to the high abdominal pressures to which it is exposed during efforts, rather than, as has been suggested, the higher temperature within the abdomen.

How is this developmental hernia produced? John Hunter's description, though written more than a century and a half ago, is still the best. In the fourth month a fold of peritoneum passes from the lower end of the testis to the groin. The tissue within it begins to grow, forming a peritoneum-covered plug. The lower end expands into a process, like the finger of a glove. The tip grows against the body wall and the tissues recede and expand in front of it. The growing plug and peritoneal process bring about growth changes in all the tissues of the body wall and a tunnel is fashioned. To permit the testis to follow the advancing gubernaculum or growth plug, its vessels and duct elongate. When this coordinated growth movement is over, the peritoneum and subperitoneal tissues surrounding the point of exit immediately repair and close the opening. John Hunter not only recognized the anatomic means by which the migration of the testis was brought about but was two centuries ahead of the world in understanding its nature. He attributed failure of descent to "an imperfection of constitution" of the testis. In the light of modern knowledge, this can be translated into "imperfection of the growth-controlling mechanism" that brings about the descent.

Increase in Tar in London's Atmosphere

The report on atmospheric pollution for the year ended March, 1931, which has just been issued, shows that in industrial districts the amount of solid matter deposited or brought down by rain varied from 550 tons to the square mile at one point in Lancashire to just over 72 tons at Leicester. The average is between 200 and 300 tons a square mile. A reduction of the total deposit is recorded at about two thirds of the ninety-eight observing stations in forty-two important towns and cities. The most remarkable improvement is in the deposit of sulphates, recorded by thirty-five stations. This result is the more satisfactory as sulphur in the atmosphere plays a considerable part in the damage to buildings by smoke. Unfortunately, this improvement does not apply to London, where an excessive increase, amounting at one district in the west to nearly thrice the previous average, is recorded. In the city of London the tar deposit has increased nearly three and one-half times. No definite explanation is given for these increases. It seems that London will have to put up with black fogs for some years to come. Sufficient smoke is emitted during two or three hours of a winter's morning to provide the blackest fog, provided it fails to be carried away. There does not appear to have been any material reduction in atmospheric pollution during the last ten years, though conditions are better than in the days of the "pea-soup" fogs of thirty years ago, when gas fires were less used and railways were not electrified. The amount of smoke haze in London appears to be far worse than in some industrial districts.

Australian Natives Cannot Survive Contact with White Men

The University of Adelaide has in the past few years organized expeditions to study the Australian native, who is threatened with the fate of his kinsman of Tasmania—extinction. Much of the expense of the expedition has been provided by the Rockefeller Foundation. The last expedition was to central Australia and comprised leading Australian anthropologists —Prof. J. B. Cleland (chairman of the Board of Anthropological Research), Prof. T. H. Johnston, Prof. C. S. Hicks, Prof. H. J. Wilkinson and several physicians. The expedition makes the remarkable recommendation that those natives who have not yet come in contact with civilization should be prevented from doing so. They should be allotted extensive hunting grounds, on which Europeans should not be allowed under any pretext. The expedition considers that we surely owe this concession to a people from whom, by force and without any compensation, we have taken away their land and deprived, in too many instances, of the means of obtaining food in their own way, and even water. The expedition is afraid that those natives who have come under European influence, whatever care is taken of them, are doomed to early extinction. They have mostly lost interest in their old native customs and live a half-starved existence on the outskirts of civilization. They are made use of to some extent by the white man, but the responsibility of treating them as what they are—grown-up children—is not sufficiently recognized. Some come under the influence of undesirable whites, and the women too often produce half-castes. Thanks to the influence of Mr. Kramer of the Aboriginies' Friends Association, the natives were friendly to the expedition and submitted without difficulty to all sorts of examinations, such as blood testing, use of the apparatus for basal metabolism, and taking plaster casts of the face. The impression was received that they preserved a high standard of morals, according to their own standards. The marriages took place according to their code. But one result was that old men had several young wives, while young men had to content themselves with cast-off old wives or widows. This system has the advantage that when a man is getting too old to hunt and readily provide himself with food his wives can do this. On the other hand, the young man can provide food for his elderly wife.

The Birth Control Question

The continued pronouncements of Justice McCardie on birth control have aroused much criticism. Addressing a woman prisoner, he said: "You have pleaded guilty to the offense of abortion, performed at the request of a girl of 19. I think these abortion cases will continue so long as the knowledge of birth control is withheld. In my view the law of abortion should be amended; at present it does more harm than good. There are 300,000 mentally defective women, only a small part of whom are under institutional care. They are breeding freely every day with terrible consequences. In my view, miscarriage in such cases should be made compulsory. Too many men released from lunatic asylums go home and make their wives pregnant. The birth of such children should not be allowed. The time has come when the nation should be warned. I warn it today." He bound the woman over for three years (to come up for judgment if called on).

In the *Catholic News* a number of clerical denunciations of the judge's view have been published, and an interview was printed with Dr. Alfred Cox, medical secretary of the British Medical Association, who said: "I think the judge is exaggerating when he says that it is almost inevitable that a mentally deficient woman would bear a mentally deficient child. The legalizing of abortion opens up extremely grave questions. The British Medical Association has always taken the line that the teaching of birth control is not only a medical one but a question for the community, involving morals and religion, and the only way in which physicians can be said to have more weight than any one else is on the effects of certain methods of birth control or the induction of abortion from a medical point of view."

The lower house of the convocation of York of the Church of England has condemned the increasing dissemination through the post of literature and advertisements dealing with contraceptives and the growing display of these articles in shop windows. A resolution was unanimously passed that the postmaster general and the government should be pressed to restrict or prevent such advertisements and display. It was complained that the publicity given to the resolution on birth control of the Lambeth conference had caused an increase in the advertisement and display of contraceptives. The reply of the postoffice to representations on the subject was that nothing could be done to prevent circulars passing through the post, because the sale of contraceptives was not illegal in England. It was said that a tremendous encouragement had been given to immorality among the unmarried.

Raw Milk as a Preventive of Dental Caries

In the Section of Odontology of the Royal Society of Medicine, Mr. E. C. Sprawson, lecturer on dental surgery, London Hospital, reported observations to show that raw milk influenced the calcification of the teeth and conferred immunity to caries. He supervised groups of children in institutions and was impressed by the high incidence of dental caries among them. The incidence was progressively less in the teeth, whether deciduous or permanent, in the order of their eruption. He investigated the effect of a daily ration of raw milk begun during the first twelve months of life. As the deciduous dentition was not completed until the end of the second year, he excluded from the survey all the children thus fed, until they had reached the age of 2 years. The cases fulfilling this condition numbered only forty, but the results were remarkable. The average age at which the ration was begun was 4½ months, and when the children were observed at the age of 4 years not a trace of caries was found. In thirty-three other children who were over 12 months when the ration was begun (in none not later than 2½ years), twenty-six at the age of 4½ years showed no caries and the remaining seven had fourteen carious teeth. He had thus had the remarkable experience of examining seventy children over 2 years of age, of whom sixty-three were totally free from dental caries. Yet nearly all these children were subnormal on admission to the institution, suffering from gastrointestinal disturbances and rickets. When the ration of raw milk was begun at later ages, an effect was still evident. In twenty-eight children it was begun at the average age of 4 years and 8 months. The present ages of these children was from 7 to 10 years and 9 months. Though most of them had carious deciduous teeth, in only two was there caries of the permanent teeth. A further control was done at a still later age. Forty-four boys came on the ration before the end of the eleventh year and were now 13½ years of age. The second permanent molar was studied and eleven cavities were found in six boys. Raw milk appeared to confer incomplete immunity if begun at a time when it was no longer a physiologic food. Nearly all children got a milk ration during the first three or four years of life, but always sterilized by boiling or pasteurization. This destroyed or impaired the antiscorbutic vitamin. The effects of raw milk on the teeth indicated a longer period of breast feeding than usually practiced. For ideal dental development he recommended a daily ration of raw milk until the age of 14.

The Certification of Blindness

In 1930 the Union of Counties Association for the Blind appointed a committee of ophthalmic surgeons and others to report on the prevention of blindness. The committee found itself faced with the lack of any scientific data as to the prevalence and causes of blindness. It seemed to them that ophthalmologists when certifying blindness should at the same time record the defects ascertained on examination and the underlying causes of blindness. The ascertainment of blindness has become more important since the blind persons act was passed in 1920, granting pensions to all persons over 50 "so blind as to be unable to perform any work for which eyesight is essential." But the absence of any uniform method of certifying blindness raises doubts as to the correctness of some of the certifications. The committee recommends that no one should be registered as blind until he has been examined and certified by a practitioner with special experience in ophthalmology and that a common form of certificate be used in all cases. The information so obtained should be collected and studied. The committee is also impressed with the necessity of obtaining precise information concerning all cases of serious visual defect in children up to the age of 16, and for them it is recommended that a similar procedure should be adopted by the board of education. With regard to the form of certificate, one used in Scotland in which a distinction is drawn between the ascertained condition of each eye and the cause of such condition is recommended. The failure to make this distinction has led to some confusion in defining the causes of blindness. For example, in interstitial keratitis, the primary cause of the blindness is not this lesion but syphilis.

The Definition of Blindness

Following a recommendation of the ophthalmologic section of the Royal Society of Medicine, the ministry of health issued a circular giving a visual acuity of 3/60 as a limit under which a person may usually be considered blind, while 6/60 or better cannot be considered blind unless there are other visual disabilities, especially a much contracted field. But it seems that, in some parts of England, persons with visual acuity (after the correction of refractive errors) of 6/60 are considered blind and others with more than 6/60, if there are other visual defects. The committee makes the following recommendations. Visual acuity means the best direct vision obtainable with each eye separately or both together as tested by Snellen's types, with focus corrected. In general a person with visual acuity below 3/60 may be regarded as blind. In many cases, however, it is advisable to test the vision at 1 meter and not to regard persons having acuity of 1/18 as prima facie blind, unless there is also considerable restriction of the visual field. A person with visual acuity of 6/60, or better, may be regarded as blind if the visual field is markedly contracted in the greater part of its extent, and particularly if the contraction is in the lower part of the field. Persons in this group suffering from homonymous or bitemporal hemianopia retaining central visual acuity of 6/18, or better, are not to be regarded as blind. With regard to intermediate degrees of visual acuity (more than 3/60 but less than 6/60), such persons may be regarded as blind if the field is considerably contracted, but not if the visual defect is of long standing and unaccompanied by material contraction of the field; e. g., in cases of congenital nystagmus, albinism or myopia. The report has been addressed to the minister of health, who has it under consideration.

The Lowest Birth Rate on Record

The fall in the birth rate continues and the lowest rate on record is once more reported. The rate for England and Wales in 1931 was 15.8 per thousand of population, which is 0.5 below the previous lowest, recorded in 1929 and 1930. The death rate was 12.3 per thousand, which is 0.9 above that for 1930. The infant death rate was 66 per thousand live births, which is 6 above that for 1930, but only in 1928 and 1930 has this rate been lower. The death rate and birth rate draw closer together each year, so that a stationary population in a few years is in sight.

BERLIN

(From Our Regular Correspondent)

Jan. 25, 1932.

Election to the Berlin Chamber of Physicians

Berlin, by exception, has its own *ärztekammer,* or chamber of physicians, although otherwise there is only one chamber of physicians in each German state. The chamber of physicians is not a federal institution but is established in accordance with the laws of the individual states composing the *reich;* for example, the chamber of physicians for Prussia and the Berlin chamber of physicians were established by an act of the Prussian legislature, Dec. 30, 1926.

The chamber of physicians was primarily created to establish a body of physicians to consider all matters pertaining to the practice of medicine, and to preserve the public health, as well as to protect the interests of the medical profession. The state and communal authorities are under obligations to afford the chamber of physicians an opportunity to express their opinions on questions coming within their sphere. In the consideration of such questions, particularly if they concern public health administration, it is incumbent on them, in suitable cases, to consult such medical experts as may be recommended to them by the chambers of physicians. The chambers of physicians are empowered to establish welfare arrangements for the benefit of physicians and their dependents.

The members of the chambers of physicians are chosen by the physicians of the respective German states *(länder)* by secret ballot. All physicians in good standing may vote. The right is, however, held in abeyance pending the rendering of a judicial decision in the event that a court investigation involving a physician has been instituted. Elections are held every four years. The members of the chambers of physicians serve without compensation. The funds for carrying on the work of the chambers are supplied in the form of annual contributions from the electorate. During the present financial stringency, any surplus funds in the hands of the chambers of physicians are used chiefly for the support of aged physicians and physicians' dependents. Under present economic conditions, public health questions play an important rôle. Every physician who is practicing medicine, or is serving in a medical capacity, must report the fact to the board of directors of the chamber of physicians. The order of business, the duties of the chairman and of the board of directors, the form of voting, and other like matters, are prescribed in the enacted law. The state supervision of the chambers of physicians and their boards of directors is entrusted to the *oberpräsident* of the province, or state. The *oberpräsident* or his representative is empowered to sit in at the sessions of the chamber of physicians and to participate in the deliberations if he so desires.

The Aerztekammer-Ausschuss is a committee composed of delegates from the chambers of physicians of the various German states. It mediates, on the one hand, between the ministry of public welfare and the chambers of physicians, and, on the other hand, between the chambers of physicians themselves. The general supervision of the Aerztekammer-Ausschuss lies in the hands of the minister of public welfare. The medical courts of honor are governed by a special law.

Under normal conditions, an election of members to fill vacancies in the chamber of physicians proceeds quietly, but the present stormy political situation is beginning to influence fields in which pure reason should hold sway. The election to the chamber of physicians is regarded as an index to the attitude toward professional questions; hence the results of the recent Berlin election were awaited with great interest. No less than nine parties presented lists of candidates, and there was evidence that machine politics played some part in the results. A total of 5,026 votes were cast out of a total of 6,031 persons entitled to vote. The most votes (2,809) were cast for the candidates of the coalitionists, who stood for the preservation of a free medical profession. The next largest number of votes (685) were cast for the candidates of the Bund der Heilberufe für soziale Erneuerung (which comprises, among others, the physicians of the national socialists). According to the results of the voting, the mandatory distribution of members will be as follows: coalitionist list, 69; Bund der Heilberufe für soziale Erneuerung, 17; Jungärzte, 10; assistants, 7; trade-union physicians (communistic and sociodemocratic representatives of the trade-union idea in medicine), 6; social democrats, 5; ambulatorium physicians, 3; communists, 2, and the confidential physicians of the occupational brotherhoods, 1. A total of 120 members will be seated in the new chamber of physicians, which convenes early in 1932 and will be drawn from the nine parties as indicated. There are some physicians in Berlin who regard all this as undue imitation, on the part of physicians, of parliamentary tactics.

Pergamum and Ancient Medicine

Prof. Dr. Theodor Wiegand, the archeologist, spoke recently on "Pergamum and Ancient Medicine," before the Berliner medizinische Gesellschaft. Ancient medicine was highly developed, especially Greek medicine. Greek physicians occupied a high social position. Rational and empiric medicine, on the one hand, and medical magic were, at that time, more or less interwoven and not separated as they are today. The practice of medicine was regarded as a sacred task, being closely associated with the worship of the deity Asclepius, the god who came originally from Thrace to Greece, who is generally pictured with an attendant serpent, and who at a later epoch was represented in human form with the serpent emblem. The chief seat of this cult was located, during the period of the Roman emperors, in the city of Pergamum, where Galen, the most eminent physician of late antiquity, was a teacher, and where Wiegand, in recent years, has excavated the ruins of the great Asclepian temple and has reconstructed a picture of the buildings as they looked in ancient times.

Pergamum was famous for its excellent hygienic arrangements. The citadel, built on a hill having an altitude of 1,000 feet, was supplied with water by means of a system that collected the supply from a spring located on the mountain top, at an altitude of 6,500 feet, a wonderful feat of hydraulic engineering. This aqueduct was not constructed in the usual Roman manner but consisted of a pressure system that utilized the principle of communicating pipes, a knowledge of which was not supposed to extend back to that period of history. The excavators unearthed a pipe line the tile of which fitted together with great precision, the joints being tightly sealed with large hollowed-out stones. Even a purification chamber constructed on modern principles was discovered in the course of the system. The lower city was supplied with drinking water by means of the ordinary Roman aqueducts. The drinking water, in closed tile, lead or bronze pipes, was kept strictly separated from the open water canals of the streets. Severe penalties were imposed on persons found guilty of contaminating public wells. Even the cisterns in the private homes were officially inspected every year. There were also regulations concerning the protection of house walls against moisture. Large warehouses with specially ventilated hollow floors served for the preservation of food products.

It was not known until recently exactly where the sanctuary of Asclepius was located. It was accidentally discovered when the Turkish government erected in its vicinity a garrison for troops and used for building purposes some of the stones dug up out of the ruins. There were found, in this connection, certain stones with inscriptions that clearly revealed the nature of the ruined building. From the entrance of the large sanctuary a covered colonnade, a kilometer in length, extended to the temple proper. The excavations unearthed a large court of honor and a number of buildings, some of which were used as places of worship and some for therapeutic purposes. Chief reliance for cures was placed in the famous spring, which was rediscovered and which furnishes in truth a water of excellent quality. The chief therapeutic remedy employed by the followers of Asclepius was the so-called incubation, or the rite of sleeping in the temple. This seems to have been merely a modified form of suggestion treatment. Having fallen asleep in the temple, the patient had a dream in which the way to healing was pointed out to him. It is possible that a purposeful interpretation of the dream by the physician-priest played an important part. Through the inscriptions on the stones, much has been learned concerning the nature of their physical therapy. This consisted chiefly of dietetic and, in part, drastic water treatments and hardening procedures, which today occasion no little surprise and cause one to wonder that the patients were not injured by them. It must be remembered that they were frequently applied to obese persons and persons who had been injured by overeating.

For the diversion and recreation of the large group of patients who sought this ancient shrine, rows of Ionic marble columns extended for a distance of about 350 meters on the south, west and north sides of the open court, and on the north side stood a magnificent theater that seated 6,000 persons. This immense pile of buildings was erected during the period 140-180 A. D., during the reign of the Roman emperor Antonius Pius. Later, Emperor Septimius Severus resided in the temple, where his son Caracalla sought to be cured of a stubborn malady. A colossal head of Emperor Caracalla was unearthed by the excavations.

It is to be hoped that Wiegand will succeed this year, with the aid of funds furnished by the German-American Gustav Oberländer, in clearing away the débris from the whole court of honor.

A Diet for Sportsmen

Concerning the proper diet for the sport devotee there are as yet no generally accepted criteria. Rubner, a master of research on nutrition, states that an adult man weighing 70 Kg. (154 pounds), who, in addition to his occupational work, engages in reasonable physical exercises, requires daily about 3,200 calories. Other investigators on nutrition place the food requirement at from 2,100 to 4,000 calories. As especially suitable for the sport devotee the following menu has been prepared: for breakfast, a large cup of coffee with a liberal amount of hot milk or other beverage; two slices of bread, with butter or marmalade; at noon, from 100 to 150 Gm. of meat, five or six potatoes, a vegetable or salad, fruit; at night, three slices of bread with cold meat, fruit. Pickert in Hamburg has undertaken to study this question on a large group of men whose working performance and nutrition could be accurately regulated and observed. He used a group of policemen in training and reached the following results: The group of twenty-four men averaging 26 years of age, during a thirty-two days' course of full training, received about 4,300 calories, about 2,300 calories of which were used up in basal metabolism, food action and energy exchange. It was found that a mixed diet with regular side-dishes of fresh vegetables, salads and the like is the most satisfactory. That these quantities of food are amply sufficient was shown by the gain in weight, by a gradual increase in performance over a long period of time, and by the excellent health conditions prevailing in the group.

The Seventieth Birthday of Prof. Heinrich Braun

Every discovery has its origin in a skeptical trait of character, the ability to imagine and a clear observation of realities. Without the skeptical attitude, the power of observation is impaired by the events of the past, and without the ability to imagine the passion for creating is absent. Whereas, in the Romanic type, these three characteristics are immediately apparent from the quickness of the reactions, in the classical type everything is concealed and suppressed. Braun's creative activity developed in the quietness of the laboratory. Whereas the discoveries of Schleich that were destined to miscarry became at once generally known, the things that are fundamental in local anesthesia, the determination of the value of local anesthetics by the self-trial with the Corning (not the Schleich) wheal, have not become common property to this day; that, secondly, his fundamental discovery (1900), the mixture of narcotizing and angiospastic substances, which made local anesthesia, for the first time, a reliable and harmless procedure, received little attention, and that essentially only the third part of his researches, the painstaking development and description of the method, received deserved recognition. In other words, with the aid of the wheal experiment and with the addition of epinephrine, any one who possessed sufficient anatomic knowledge could now practice local anesthesia. Only the details needed to be worked out. With these words that Kulenkampff, Braun's successor, uttered in his address delivered in honor of the seventieth birthday of his former teacher, more was characterized than the mere external fact of the completion of seventy years of existence. These words served to portray a personality that achieved world fame through the aforementioned performances, which speak for themselves, and which, with the simple beginning in a provincial hospital in Zwickau, Saxony, became known to the physicians of all countries. Such a performance presupposes the unremitting application of all the qualities of the man, who, with conscious endeavor, took the words of Billroth as a guide and sought to make himself dispensable by aiding in the training of self-reliant physicians. Braun's autobiography contains a classic formulation of this thought, the application of which extends far beyond its purely medical aspects and which is wholely characteristic of the writer: "The social life and the social relations of man presuppose constant compromises, if they are to have a definite purpose and are to meet with any success. One may often be compelled to accept for the time being the idiosyncrasies and the peculiar views of one's associates; one may have to adjust himself to them or even to make use of them. In practical life, one must not cling to ideals that can never be realized. The person who holds out for an ideal condition before taking any action will therefore never be able to create anything permanent. Harmony can be secured only when men strive to attain an optimum that is limited and determined by the given conditions. That is nature's law that must be observed and fulfilled."

ITALY

(From Our Regular Correspondent)

Jan. 10, 1932.

Congress of Urology

The tenth Congresso della società italiana di urologia was held at Bari under the chairmanship of Professor Bruni. Professor Righetti, director of the Clinica chirurgica, in the opening address, referred to the close ties that unite urology to surgery, from which it sprang. One cannot become a urologist without first having been a surgeon. This principle, which should be kept in mind by those who plan to devote themselves to urology, originated with the ancient Italian masters of surgery, to mention only Mariano Santo da Barletta, whose instrument for the extraction of calculi from the bladder will be recalled.

DISEASES OF THE NECK OF THE BLADDER

The first topic on the program, "Diseases of the Neck of the Bladder, Excluding Hypertrophy and Cancer of the Prostate," was presented by Professor Alesio of Turin and Professor Pisani of Milan. Professor Alesio pointed out that the interest of urologists has been particularly directed to the study of those dysuric manifestations that are caused by a lesion of the neck of the bladder. Although clinical observation has brought to light many cases, the etiology and the pathogenesis are not well established. It is customary to apply the term "neck of the bladder" to the lower part of the bladder but it is difficult to specify morphologically the limits and the extent of the collum. Following the details of the histologic structure along the vesico-urethral tract, one distinguishes at a certain point two diverse structural planes. As regards the muscular tunic, from the surgical point of view, the neck of the bladder is no better defined. Beyond the internal urethral orifice, a vesical bend and a urethral bend of the collum will be observed, together with other connected structures: the uvula vesicae, the prostatic sinus, and the upper extremity of the urethral crest. The site, the direction and the mobility of the neck of the bladder demonstrate its topographic importance, and its backward and downward movement reveal this importance when the bladder begins to empty itself, as shown by the fluoroscopic study of the process of micturition. Connected with the prostate, as it is, the neck of the bladder derives to a great extent its structural characteristic from the glands of the prostate, scattered in every direction through the muscular and connective tissue of which it is composed. In the glandular element one must recognize an important component of the neck of the bladder, which being diversely constituted in different subjects serves to mark the individual character.

Regarding the contractility of the collum and the mechanism of the opening and closing of the bladder, it has been assumed for a long time that the motor fibers that innervate the collum, being derived from two different systems, the sympathetic and the autonomic, have an antagonistic action. But, according to modern conceptions, this antagonism is by no means demonstrated, and the fact must be recognized that uncertainty still exists in regard to the inhibitive action of the nerves of the bladder. New difficulties arise when one seeks to demonstrate the existence of a spinal center by the tonic contraction of the sphincter. The existence of such a center would seem to be established by data based on clinical observations and not contestable by the assumption of an automatic function developed in the parietal nerve elements; but it is difficult to localize it. The neck of the bladder is subject to functional disturbances, which are caused chiefly by mechanical influences, which are brought to bear when there occur changes in form in the lower part of the bladder and in the portion of the urethra capable of preventing the closure of the bladder or of constituting an obstruction at the internal urethral orifice. The obstruction may be complete or incomplete, temporary or permanent.

Calculi and foreign bodies are the most common factors that obstruct the closure of the bladder; in addition there occur tumors, cicatricial adhesions, and sclerotic changes of cervical tissues. Among the factors causing complete temporary obstruction, is congestion. Stenosis, valves, hypertrophy of the verumontanum, tumors or cysts may impair the permeability of the urethral lumen. The terms "valves," or "bars," of the collum, "median bars," "prostatic bars," stenosis, contractures, by means of which an effort is made to bring under a single category most of the abnormalities of the collum and those lesions that cannot be classified under the neoplasms, have no ground for existence if considered histologically. Nevertheless, it is necessary to admit that there are peculiar diseases of the neck of the bladder although pathology has not created a special chapter for them. The causes of these diseases may be nervous or organic. Inflammation constitutes the more common etiologic factor in diseases of the neck of the bladder, the most typical manifestations of which are inflammatory sclerosis and constrictions.

Prof. Luigi Pisani of the University of Milan presented the second part of the topic, which dealt with diseases of the neck of the bladder from the clinical point of view. He said that it is impossible to separate in a frank manner the pathology of the neck of the uterus from that of the prostate, the pathology of the seminal vessels and that of the posterior urethra in the man, and of the urethra and of the reproductive organs in the woman, from the pathology of the bladder. The topic should take as its principal subject the retentions of cervical origin, due mainly to a lesion localized in the collum, which impairs its function and causes the retention; hence his study would consider chiefly the collum in the male sex. Characteristic of these types is the rarity of precise observations, which explains the manifold terms proposed by various authors. For the term *prostatici senza prostata,* proposed by Guyon, have been substituted the terms vesical prostatism, contractures, fibrosis, atrophy of the prostate, spasm, idiopathic hypertonia of the smooth sphincter muscle, congenital dyscrasic hypertrophy, and others. There are many theories, and it is important to attempt to clarify the question.

Vesical urinary retention always presents in its pathogenesis obscure features pertaining to the cervical lesions of the bladder. The purpose of this paper was to consider whether it is possible to assume the existence of a clinical entity whose pathologic basis, different from that of prostatic adenoma, has likewise its seat in the neck of the bladder, and whose symptomatology culminates in the manifestation of retention. This clinical entity has, in common with the other well known forms, the same complications; but the clinical and instrumental observations on which are based the diagnosis and the treatment are different.

It is difficult to confine attention to the collum and to the smooth sphincter muscle, and to neglect the two other factors that play a part during micturition: the vesical muscle and the striate muscle. The manifestations ascribed to the neck of the bladder are often symptoms of a disorder which has its focus at another point and which nearly always requires the participation of other pathologic causes not identifiable in the collum (detrusor urinae muscle, smooth sphincter muscle). Hence, clinically, it is difficult to speak of "diseases of the neck of the bladder" and make of them a special nosologic chapter. There may, however, be clinical syndromes in which the pathologic cause is strictly localized in the collum, is primarily in that seat, but is not influenced by other remote factors, so that a cure can be effected only by the removal of the collum. The clinical syndrome can be characterized by successive stages. In the beginning there appear, in the collum, minute structural lesions, which produce at the opening an abnormal state of resistance. There begins then the first phase characterized by manifestations of an irritative nature, with disturbance of micturition of a dysuric nature. There follows an extension of the structural lesions, which render the resistance at the opening more or less permanent. The collum undergoes an irregular thickening and a retrocervical, pretrigonal cavity is formed. After a period of apparent quiescence, there appear complications that commonly supervene as corollaries of every vesical retention, mainly sepsis, pyelo-uretherectasis, backflow, urinary infection, and the like.

The interpretation of the functional disturbances is still somewhat uncertain. It does not appear that one may speak of a spasm, much less of a paralysis of the trigon. Some authors support the theory of an increased tonus of the sphincter muscle. The speaker considers it justifiable to classify among the important urinary syndromes, alongside prostatic adenoma and urethral stenosis, the rigid induration of the neck of the bladder, called by some authors "disease of the collum." He prefers to call this syndrome, in view of the definitive anatomic substratum, by the term "sclerosis of the collum." The fundamental nature of this type is degenerative. It is an acquired disease and has a chronic or toxic course. It is not easy to distinguish this condition from prostatic adenoma and atrophy of the prostate. For the diagnosis, in addition to the described symptoms, bimanual exploration, endoscopic examinations and cysto-urethrography are useful. The treatment should be influenced by the same conceptions as prostatic adenoma. In the beginning types medicinal remedies, bloodless instrumental treatment and electrotherapy are effective. The presence of a vesical residuum makes necessary direct operative local treatment. Of all the proposed methods the speaker prefers total removal of the collum, leaving the bladder wide open. This method has been followed by immediate good results.

Professor Cimino of Palermo, commenting on a series of cases, said that one must be careful in the use of roentgenotherapy in the treatment of these morbid types. Bloch of Florence stated that he did not agree with the speakers with regard to the pathogenic conception of "disease of the collum." Nego and Sacchi of Turin and Lilla of Leghorn contributed communications on "disease of the vesical collum." Columbino of Turin suggested the substitution of "wide stenosis of the collum" for the term "disease of the collum." Cilento of Naples discussed endometrioid formations of the bladder that sometimes simulate vesical retention.

After some further communications, the society chose Rome as the meeting place for the next congress. The chief topic on the program will be "The Remote Results, Orthopedic and Functional, of Renal Surgery and of Consecutive Urethral Surgery."

BUDAPEST

(From Our Regular Correspondent)

Feb. 5, 1932.

Professor Calmette's Standpoint on the Lübeck Affair

Professor Calmette publishes a note in a recent issue of the *Pesti Napló* in which he says: "It was my intention to cloak myself in deep silence up to the end of the Lübeck trial. As, however, the antituberculosis preventive inoculations were unjustly attacked in their foundations, particularly by Prof. Dr. Enderlein, in a German paper, I find it necessary to make known my standpoint. It is my feeling that I owe this, not so much to French medical science, the less so toward my own person, but toward such a scientific method, which interests all mankind. But let the figures speak for themselves. Up to Oct. 1, 1931, about one million children have been inoculated in the whole world, without a single such mishap or accident that could be attributed to the inoculations proper. In Lübeck, 242 children were inoculated and out of these 76 died as a result of the intervention. The conclusion to be drawn is that in Lübeck the children received something quite different from B C G. It is my opinion that it is the task of the Lübeck court to decide the nature of this vaccine and to verify the responsibility. This much I can say about the essence of the matter.

"Now let us discuss the article of Professor Enderlein, which appeared in the *Deutsche Allgemeine Zeitung.* I have to enlighten the readers who took notice about the contents of this article, that those so-called physiologic data, which are enumerated in the article, are nothing else but pure assumptions, abstract conclusions, which are not based on any experimental facts. The absolute lack of practical confirmation robs these facts of any scientific character. It is regrettable that from an occasion of such great importance some people try to influence the public by worthless arguments. In this error they are much less led by the love of justice than by an endeavor to gratify their passions. In the land of Pasteur, the opinion is prevalent that such excursions to the camp of politics have to be strictly avoided. Our task can be only to work for the advancement of science and particularly for the progress of preventive medical science. Instead of publishing much or often harmful theories we follow the plan that we publish only such reports that have been scrupulously controlled by experiments. This is our tradition and this is our strength. We can verify that, since the start of the B C G disputes, applications for vaccines have been made in an ever increasing number. At present we supply daily vaccinating material sufficient for 320-340 children; that is to say, the number of inoculations made in France in a single day exceeds the number of the total inoculations made in Lübeck. On the other hand, control experiments are in course all over the world and all of these prove favorable to B C G, the harmlessness of which is beyond doubt. Among such circumstances we await the opinion of the German government's experts, before the Lübeck court, with full confidence, and we hope that their opinions will be given the greatest publicity."

Strike of Seventy Young Physicians

Seventy assistant physicians and junior dressers, employed at the outdoor departments of the Budapest Jewish hospital, went on strike because the management of the hospital refused their appeal for salaries. The hospital board argued that, owing to unfortunate financial circumstances, they have to fight to keep the hospital going; on the other hand, the positions, when announced, were emphasized to be gratuitous. The medical association intervened on behalf of the young doctors, also in vain, because the managers of the Jewish hospital declared it was utterly impossible at present to grant their request, although they agree that it would be fair to allow some modest payment, which they will let them have whenever the financial conditions of the Jewish community improve. The assistant physicians did not resume work.

Nervous and Mental Indications for Induced Abortion

Dr. P. Büchler of Budapest University holds the view that induced abortion is indicated in cases of severe reactive depression, when the patient displays obstinate resistance against taking nourishment, or if she develops suicidal tendencies. Institutional treatment must first be tried, and abortion is indicated only if this treatment is not practicable. In an institute, resistance to food can be overcome by forcible feeding, and suicide can be prevented by careful watching; but even in institutions, the pregnancy may have to be terminated. Most difficult is the problem of schizophrenia. Although it is beyond dispute that the reproduction of schizophrenic individuals is undesirable, effort must be directed to the prevention of gestation rather than its interruption. There are no definite general indications in psychiatry, but in psychopathies arising from severe intoxications and infections, and in certain cases of paralysis, intervention is justified, and, at any rate, danger to the life of the mother can be avoided. As a rule, when a psychosis is suspected, Dr. Büchler recommends the conveyance of the patient to a psychopathic hospital, where the physician in charge can take what action he deems necessary. Severe cerebral and spinal diseases are absolute indications for abortion. Disseminated sclerosis is an important one, because this diagnosis tends to progress after childbirth: palsies, ataxia of a great degree, and the quick loss of strength may follow. This holds true also for locomotor ataxia since ataxia increases after childbirth, and bladder and intestinal troubles may supervene. It is beyond dispute that spinal and cerebral tumors, syringomyelia, progressive spinal muscular atrophies, hereditary chorea, lateral sclerosis, and severe forms of epidemic encephalitis form absolute indications. In doubtful cases, Dr. Büchler holds that social and eugenic considerations may be allowed to influence the decision, but only to a minor degree.

The Occupational Diseases of Physicians

Dr. Antal details in the *Népegészségügy* (People's Health) the results of his investigations as to the dangers to which physicians while following their vocations are exposed. He says that the public does not appreciate the risks to which physicians are exposed when they attend them. Behind the back of the doctor in the tropics there is constantly lurking the bugbear of bubonic plague, cholera and yellow fever. The Dutch government knows this well. This is why after a comparatively short term of service a full pension is allowed, few surviving to enjoy it. If a patient falls ill with an infectious fever on a ship, everybody shrinks from going near the cabin where the patient lies, but the surgeon has to rush to him, as if he had a magic mantle which protects him from all infections. How different it really is. Not only the physician himself but also his family and surrounding, intimate friends are endangered. How many doctors have carried the deadly scarlatina and diphtheria into their own families? How many children of physicians became the sacrifices of their father's occupation? Physicians employed in insane asylums are prone to special dangers. They are not infrequently attacked, cruelly beaten, and even killed by their own patients. Was not the unfortunate Dr. Gudden dragged into the water and drowned by the crazy Louis II, king of Bavaria? Doesn't blood poisoning, syphilis and tuberculosis occur frequently enough with surgeons, anatomists and pathologists? We all know the expression "dentist's heart," which is the consequence of the forward posture of the body through the years. Eye disease may be the result of constant microscopic work as is done by histologists and bacteriologists. The great Malpighi became almost totally blind from continuous microscopic work. How dangerous may be the work of the radiologist. Practitioners respond to requests for their services in the most severe weather. In many cases they contract sciatica, rheumatism, pneumonia as the result. We know from statistics that the relatively short duration of the lives of physicians is due to heart diseases and arteriosclerosis, the oncome of which is enhanced by their work.

JAPAN

(From Our Regular Correspondent)

Jan. 21, 1932.

Smallpox on Ships at Yokohama

A first-class passenger, an American, on board the steamship *President Jackson,* which entered the port of Yokohama with about 136 passengers, was found to have smallpox, January 3. After the examination of fifty-four persons among the passengers and crew, who came in contact with the disease, all persons on the ship were allowed to go ashore. Another case of smallpox was found on a British steamer of the United British Shipping Company, which left Shanghai, January 12, and touched at Yokohama on her way to Vancouver, January 15. The patient, the first mate of the ship, was sent to the hospital. The authorities are of the opinion that there is no danger of the disease spreading in Japan.

Health Problems in Tokyo

The metropolitan police held a meeting of health officers of all the police stations in Tokyo, January 11, to find out what epidemic diseases were present. From January 1 to January 6, 198 cases of infectious diseases were reported in Tokyo. The total number of cases of epidemic diseases that occurred during 1931 was 22,759, an increase of 2,098 cases over the number that occurred in 1930. The increase was due largely to diphtheria, scarlet fever and dysentery; the 4,782 cases of typhus represents a small decrease. The cases of dysentery in children seem to be on the increase in number this year.

The social bureau, which has twelve children's consultation offices in Tokyo, intends to examine the members of 12,000 families and to give them medical advice.

In Hongo, one of the fifteen wards of Tokyo, Baronesses Wakatsuki and Shidehara, wives, respectively, of the ex-premier and the ex-foreign minister, and other women of rank, plan to raise a large sum of money to improve the health of children whose parents are too poor to have them take their lunch to school. The committeemen of the thirty-six social work offices in the city will cooperate in this work.

Medical Establishments

The government dietetic institute, which was about to be discontinued for reasons of economy, it is reported, will continue as an independent establishment through the strenuous efforts of the director of the institute, Dr. Saeki.

Demonstration at Leprosarium

On the evening of January 17, about 480 of the 700 patients of the Kyushu Leprosarium tried to escape and go to the Kumamoto prefectural office to present a petition to the authorities. The demonstration was caused by a rumor that the chief of the asylum, Mr. Kawamura, and one other member, who were loved deeply by the patients, were going to be removed from their posts. Policemen, gendarmes and firemen succeeded in making them return to the institution.

The Medical Budget for 1932

Generally, the budget for the fiscal year 1932 has been curtailed in all departments in this country excepting that of public health. Especially the following six items can be said to have received generous appropriations: to aid in carrying out antiparasitic regulations, 10,000 yen; for the manufacture of morphine and allied alkaloids, 12,250 yen; for the enlargement of the national leprosarium, 70,000 yen; for the enlargement of the Kusatsu leprosarium, 120,000 yen; for the manufacture of codeine hydrochloride, 197,178 yen; for the International Congress on Hygiene, 5,000 yen.

Medical Meetings

The twelfth general meeting of the Keio Medical Society was held, Nov. 6, 1931, in the Keio Medical College at Yotsuya, Tokyo. Dr. Jennings, an exchange professor from the Rockefeller Foundation, was invited to lecture on the "Significance of Fetal Defects." Professor Koizumi acted as interpreter.

At the scientific meeting of the Kitasato Institute in Tokyo, Nov. 17, 1931, Dr. Matsunaga read a paper on "Hemolysis by the Staphylococcus." Dr. Mijajima, who was home on leave of absence from the League of Nations, made an address on the present condition of medical affairs in Europe and America.

Personals

Dr. Nozu of Tokyo Imperial University, Dr. Okuno of the Government Institute for Infectious Diseases, and Dr. Akatsuka of the St. Luke's International Hospital at Tsukiji, Tokyo, have left Yokohama for America, to study for two years at the Rockefeller Institute. After their return home they are to be rural health directors.

Marriages

John Austin Kerr, Santa Marta, Colombia, to Miss Janet Fraser MacLennan of Oberlin, Ohio, February 20.

Mark T. Phy, Hot Lake, Ore., to Mrs. Gladys R. Kidwell of Baker, at Walla Walla, Wash., Dec. 19, 1931.

Harry H. Epstein, Trenton, N. J., to Miss Ruth Goldstein of Brighton Beach, N. Y., February 21.

Arthur Taylor Henry, Vancouver, B. C., Canada, to Miss Marguerite Neilson, January 27.

John Braxton McKee, Winchester, Va., to Miss Ruth Loraine Bussey of Detroit, January 1.

Robert D. Evans, Minneapolis, to Miss Lucille Lusk of Mankato, Minn., recently.

Lewa Wilkes, La Grande, Ore., to Mr. Cecil V. Ager, Dec. 26, 1931.

Saul Freedman to Miss Belle Federman, both of New York, January 17.

Deaths

John Farquahar Fulton ⊕ St. Paul; University of Pennsylvania School of Medicine, Philadelphia, 1880; Secretary, Section on Ophthalmology, 1885-1886, Secretary, Section on Laryngology and Otology, 1893-1894, and Chairman, 1894-1895; Trustee American Medical Association, 1901-1904; professor emeritus of ophthalmology and otolaryngology, University of Minnesota Medical School, Minneapolis, member of the American Academy of Ophthalmology and Oto-Laryngology and fellow of the American College of Surgeons; past president of the Minnesota State Medical Association and the Ramsey County Medical Society; on the staffs of St. Luke's and Charles T. Miller hospitals; attending oculist to the Wilder Charity Dispensary; aged 73; died, February 1, of carcinoma of the bladder.

Norman Kitson McIvor, Winnipeg, Manit., Canada; Manitoba Medical College, Winnipeg, 1908; fellow of the American College of Surgeons; lecturer on surgery at his alma mater; served during the World War; surgeon to the outpatient department, Winnipeg General Hospital; aged 56; died, Dec. 30, 1931, in the Misericordia General Hospital.

Ernest Roy Logan, Omar, W. Va.; Ohio State University College of Medicine, Columbus, 1917; member of the West Virginia State Medical Association; served during the World War; aged 41; died, January 13, in the Hatfield-Lawson Hospital, Logan, of pneumonia, mitral stenosis and dilatation of the heart.

James Franklin McLay, Hamilton, Ont., Canada; University of Toronto Faculty of Medicine, 1913; served during the World War; formerly member of the board of education, medical health officer, coroner and member of the council of Grimsby; aged 48; was found dead in his garage, January 1.

Sidney Nixon Davis, Welland, Ont., Canada; Queen's University Faculty of Medicine, Kingston, 1891; member of the Associated Anesthetists of the United States and Canada; served during the World War; on the staff of the Welland County Hospital; aged 63; died, Dec. 31, 1931, of pneumonia.

Joe Albert Hartsell ⊕ Concord, N. C.; Jefferson Medical College of Philadelphia, 1912; past president and secretary of the Cabarrus County Medical Society; served during the World War; formerly county coroner; on the staff of the Concord Hospital; aged 42; died, February 18, of heart disease.

Clinton Benjamin Hawn ⊕ Albany, N. Y.; Albany Medical College, 1906; clinical professor of medicine at his alma mater; on the staffs of the Anthony N. Brady Maternity Hospital and the Albany Hospital; aged 50; died, February 12, of coronary thrombosis and coronary sclerosis.

William L. Baum ⊕ Chicago; Jefferson Medical College of Philadelphia, 1888; fellow of the American College of Surgeons; served during the World War; dermatologist to St. Luke's Hospital and the Post-Graduate Hospital; aged 64; died, February 22, of cerebral hemorrhage.

Ralph Spencer Cone ⊕ Westwood, N. J.; University and Bellevue Hospital Medical College, New York, 1906; for seventeen years member of the board of health; aged 52; died, January 24, of carcinoma of the stomach with metastasis to the mediastinum and neck.

Augustus Farlin House, Los Angeles; Cleveland Medical College, 1871; formerly associate professor of clinical surgery, Cleveland College of Physicians and Surgeons; Civil War veteran; aged 84; died, February 2, of coronary thrombosis and arteriosclerosis.

Joseph A. Murphy ⊕ Medical Director, Captain, U. S. Navy, San Diego, Calif.; Medico-Chirurgical College of Philadelphia, 1898; entered the Navy in 1900; aged 56; died, January 22, in the U. S. Naval Hospital, of cerebral hemorrhage.

Aelic Edward Ferguson, Austin, Ky.; University of Louisville School of Medicine, 1905; member of the Kentucky State Medical Association; aged 56; died, February 2, in the Community Hospital, Glasgow, of heart disease and pneumonia.

Preston Joseph Johnston ⊕ Kane, Pa.; Medical College of the State of South Carolina, Charleston, 1913; member of the South Carolina Medical Association; served during the World War; aged 40; died, February 15, of coronary embolism.

George Phillip Pipkin, Pueblo, Colo.; Medico-Chirurgical College of Kansas City, Mo., 1902; member of the Colorado State Medical Society; medical superintendent of the Corwin Hospital; aged 58; died, January 27, of pulmonary tuberculosis.

George Winters Lilly, Kansas City, Mo.; University Medical College of Kansas City, 1887; formerly on the staffs of St. Joseph's Hospital and St. Luke's Hospital; aged 66; died, Dec. 26, 1931, of atrophic gastric ulcer.

F. Parks Ogden, Louisville, Ky.; University of Louisville School of Medicine, 1902; member of the Kentucky State Medical Association; formerly member of the city council; aged 51; died, February 6, of heart disease.

Charles Sheridan Downes, San Francisco; College of Physicians and Surgeons of San Francisco, 1900; aged 68; died, Dec. 2, 1931, in St. Mary's Hospital, of lobar pneumonia, arteriosclerosis and diabetes mellitus.

Flavius E. Hartsell, Oakboro, N. C.; Baltimore Medical College, 1895; member of the Medical Society of the State of North Carolina; aged 62; died, February 14, in the Yadkin Hospital, Albemarle, of encephalitis.

Jacob S. Hicks, Allegany, N. Y.; Trinity Medical College, Toronto, Ont., Canada, 1891; member of the Medical Society of the State of New York; aged 63; died, February 8, in a hospital at Colborne, Ont., Canada.

Hugh Lytle Hough ⊕ Lancaster, S. C.; Birmingham (Ala.), Medical College, 1908; formerly health officer of Florence, Ala.; aged 53; died, February 6, of injuries received in an automobile accident.

James Mendenhall Dunlap, Ansonville, N. C.; University of the City of New York Medical Department, 1876; aged 81; died, February 14, in the Anson Sanatorium, Wadesboro, of cerebral hemorrhage.

Samuel S. Salisbury, Los Angeles; Hahnemann Medical College of Philadelphia, 1873; member of the California Medical Association; aged 84; died, February 1, of cerebral hemorrhage.

Domenico Jorio, Los Angeles; Royal University of Naples Faculty of Medicine and Surgery, Napoli, Italy, 1903; aged 56; died, Dec. 17, 1931, of coronary occlusion and coronary sclerosis.

Wesley Wright Pirt, Winnipeg, Manit., Canada; Manitoba Medical College, Winnipeg, 1909; served during the World War; aged 50; died suddenly, Dec. 17, 1931, of angina pectoris.

Adam Herney, San Diego, Calif.; Ensworth Medical College, St. Joseph, Mo., 1893; aged 61; died, Dec. 26, 1931, of arteriosclerosis, hypertension, hemiplegia and bronchopneumonia.

Gibbon William Carson, St. Louis; Missouri Medical College, St. Louis, 1878; member of the Missouri State Medical Association; aged 77; died, January 23, of heart disease.

Rupert Edward McKibbon, Seattle; University of Toronto Faculty of Medicine, Toronto, Ont., Canada, 1897; served during the World War; aged 57; died, Nov. 25, 1931.

James Elijah Goethe, Jacksonville, Fla.; Baltimore Medical College, 1892; member of the Florida Medical Association; aged 77; died, February 1, of cerebral hemorrhage.

Joshua A. Downs, Los Angeles; State University of Iowa College of Medicine, Iowa City, 1897; aged 62; died, Dec. 30, 1931, of organic heart disease and lobar pneumonia.

John Bertrand Woodworth, Cleveland; Homeopathic Hospital College, Cleveland, 1893; served during the World War; aged 61; died, January 1, of chronic nephritis.

Thomas Judson McPhee, Nanaimo, B. C., Canada; McGill University Faculty of Medicine, Montreal, Que., 1907; aged 51; died, Dec. 20, 1931, as the result of a fall.

Albert Chester Johnson, New York; Bellevue Hospital Medical College, New York, 1894; aged 50; died suddenly, January 30, of carcinoma and thrombosis.

Haven Day Skinner, Modesto, Calif.; Drake University College of Medicine, Des Moines, Iowa, 1904; aged 50; died, Dec. 27, 1931, of cirrhosis of the liver.

Claude C. Craighead, Athens, La.; Kentucky University Medical Department, Louisville, 1906; aged 56; was killed, January 24, in an automobile accident.

Clifford Samuel Chapin ⊕ Great Barrington, Mass.; Bellevue Hospital Medical College, New York, 1896; aged 58; died, January 27, of angina pectoris.

Frederick Alexander Rosebrugh, Grimsby, Ont., Canada; University of Toronto Faculty of Medicine, 1892; aged 63; died, Nov. 25, 1931, of pneumonia.

Robert Newton Mekemson, Biggsville, Ill.; College of Physicians and Surgeons, Keokuk, Iowa, 1882; aged 83; died, January 21, of mitral insufficiency.

Lorrimer Fauntleroy James ⊕ Richmond, Va.; Medical College of Virginia, Richmond, 1895; aged 57; died, Dec. 29, 1931, of influenza and pneumonia.

Robert Nathaniel Todd, Indianapolis; Central College of Physicians and Surgeons, Indianapolis, 1899; aged 59; died, January 27, of pernicious anemia.

Oliver Bernard Witte, Fredericksburg, Texas; University of Tennessee College of Medicine, Memphis, 1919; aged 38; died, January 14, of pneumonia.

Daniel Thomas Crawford, Youngstown, Alta., Canada; University of Toronto Faculty of Medicine, Toronto, Ont., 1896; died recently, in Hanna.

Guardey O. Hall, Oklahoma City; Epworth College of Medicine, Oklahoma City, 1909; aged 49; died, January 27, of acute dilatation of the heart.

Annie Laurie Sawyer ⊕ Atlanta, Ga.; Woman's Medical College of Pennsylvania, Philadelphia, 1900; aged 67; died, January 20, of myocarditis.

Arthur Charles White, Chickasha, Okla.; Toledo (Ohio) Medical College, 1897; aged 59; died, January 18, of chronic nephritis and endocarditis.

Albert Hans Scheffsky, St. Louis; St. Louis College of Physicians and Surgeons, 1918; aged 43; died, January 29, of illuminating gas poisoning.

Dennis D. Casto, Ripley, W. Va.; University of Louisville (Ky.) School of Medicine, 1891; aged 64; died, January 18, of carcinoma of the liver.

John B. Aycrigg, Ridgewood, N. J.; College of Physicians and Surgeons in the City of New York, 1879; aged 77; died, January 25, of pneumonia.

Charles W. Salisbury, Los Angeles; Starling Medical College, Columbus, 1882; aged 77; died, January 21, of chronic nephritis and cystitis.

Fred Leland Goddard, Goddard, Alaska; Long Island College Hospital, Brooklyn, 1887; aged 69; died, January 9, of cerebral hemorrhage.

Charles W. Judkins, Skowhegan, Maine; Hahnemann Medical College of Philadelphia, 1881; aged 76; died, January 22, of heart disease.

Elmer Martin Perry, Fort Spring, W. Va.; Baltimore Medical College, 1895; aged 62; died, January 6, of asthma and bronchopneumonia.

Howard C. Jones, Danville, Ind.; Indiana Medical College, Indianapolis, 1877; aged 78; died, January 23, at Knox, of pneumonia.

David R. Harris, New Castle, Pa.; Hahnemann Medical College of Philadelphia, 1878; aged 77; died, in January, of heart disease.

John W. Hall, Portland, Ind.; Medical College of Ohio, Cincinnati, 1872; aged 86; died, January 20, of cerebral hemorrhage.

Robert H. Casperson, Miami, Fla.; Jefferson Medical College of Philadelphia, 1884; aged 72; died, January 23, of myocarditis.

Hannibal A. Greenleaf, Clarksville, Ind. (licensed, Indiana, 1897); Civil War veteran; aged 85; died, January 15, of senility.

Abraham F. Smith, Urbana, Ind.; Columbus Medical College, 1878; aged 79; died, January 28, of embolism.

Martin V. Miller, Palatka, Fla.; Atlanta Medical College, 1893; aged 57; died, January 24, of pleurisy.

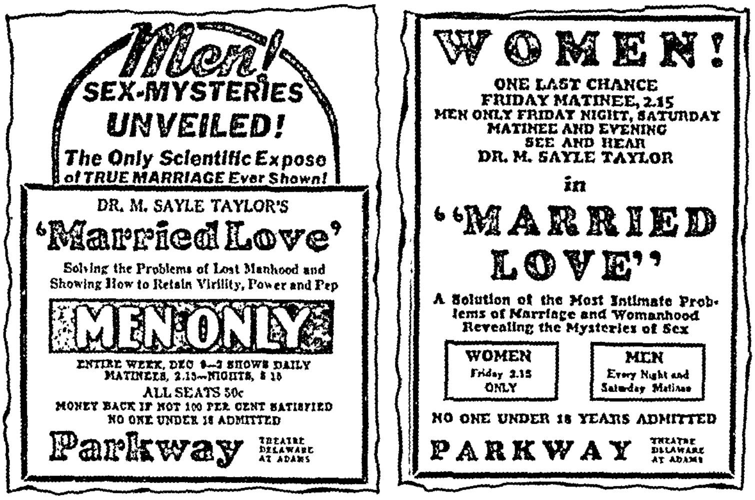
Bureau of Investigation

M. SAYLE TAYLOR

"America's Doctor of Matrimony" Who Claims to Reveal the Mysteries of Sex

"Dr." M. Sayle Taylor goes about the country discoursing on sex, selling books and pamphlets on the same subject and exploiting a "patent medicine" which seems to have been called, variously, "Vagitone" and, more recently, "La-Fon." Vagitone used to come as a liquid, but when the name was changed, it was put out in powder form. Taylor also sells a vaginal douching device that he calls "Vagispray." M. Sayle Taylor's present activities are of comparatively recent date. Some five or six years ago, Taylor is said to have been superintendent of schools in North Bend, Oregon. While in that city, he is said to have become associated with a Mr. and Mrs. Westheffer in leasing a hotel. After Mr. Westheffer's death M. Sayle Taylor left North Bend in 1926.

M. Sayle Taylor has appeared at motion-picture theaters in connection with films of an erotic character; at other times, he has given "stage presentations" in which were used "living models" and "human charts." Three or four years ago, Taylor was in Chicago appearing in connection with a motion picture entitled "Streets of Sorrow." The Chicago *Tribune's* motion-picture critic is a woman and because Taylor, at that time, was advertising that his show was for "Men Only," she asked one of the men on the staff of that paper to drop in and report what he found. Mr. Babcock, the reporter in question, gave what we believe to be the best description yet of Taylor's performance and it is revealing enough to be quoted at some length:



Men!
SEX-MYSTERIES
UNVEILED!
The Only Scientific Exposo of TRUE MARRIAGE Ever Shown!
DR. M. SAYLE TAYLOR'S
'Married Love'
Solving the Problems of Lost Manhood and Showing How to Retain Virility, Power and Pep
MEN ONLY
ENTIRE WEEK, DEC 9—3 SHOWS DAILY
MATINEES, 2.15—NIGHTS, 8 15
ALL SEATS 50c
MONEY BACK IF NOT 100 PER CENT SATISFIED
NO ONE UNDER 18 ADMITTED
Parkway THEATRE DELAWARE AT ADAMS

WOMEN!
ONE LAST CHANCE
FRIDAY MATINEE, 2.15
MEN ONLY FRIDAY NIGHT, SATURDAY MATINEE AND EVENING
SEE AND HEAR
DR. M. SAYLE TAYLOR
in
"MARRIED LOVE"
A Solution of the Most Intimate Problems of Marriage and Womanhood Revealing the Mysteries of Sex
WOMEN Friday 2.15 ONLY
MEN Every Night and Saturday Matinee
NO ONE UNDER 18 YEARS ADMITTED
PARKWAY THEATRE DELAWARE AT ADAMS

Photographic reproduction (greatly reduced) of some typical M. Sayle Taylor advertising.

"CHICAGO YOKELS READY VICTIMS OF ANCIENT 'MEN ONLY' STUFF"

> "The 'Men Only' show now running at the Rose theater is the choicest bit of boob bait to be found in the loop. It is the old outdoor medicine show, the street carnival 'anatomy' show, a 'Way Down East-Lulu Belle-Shanghai Gesture' production, and the old army game all wrapped up for the price of one. The loud speaker at the Rose screams to the passerby on Madison Street that here is a sensational exposé of sex. The passing sucker pauses, and bites. Inside, after separating himself from 50 cents for admission, he is inveigled into forking over a dollar for further 'information.' And this, mind you, in the heart of civilized, sophisticated Chicago. The performance purports to be the unreeling of a movie entitled 'Streets of Sorrow'—'and special features.' They consist of a news reel and a lengthy discourse by the self-styled sex evangelist of the world.
>
> "This Billy Sunday of the sex world says his name is Dr. M. Sayle Taylor and that his title is president of 'The National Society of Eugenics—strictly philanthropic.' His 'message' is so appallingly crude and nastily nauseating that at first the stronger stomached of the audience are inclined toward lusty laughter. However, they gradually succumb to the wizardry of his eloquence, until, at the end, they are whipped into a frenzy of morbid sensationalism. At that point comes the high powered salesmanship. Three paper pamphlets, dealing with the mating instinct and other problems appertaining thereto, are produced, and sold for a dollar a set. . . . 'The ushers will now pass among you, gents. Your first and last chance to get this startling information—and all for one little dollar bill.' . . . The ushers are usherettes of, apparently, immature years.
>
> "At first the doctor impressed me as a learned man become an introspective entomologist on the subject of sex. But when I saw the cash register developing a hotbox I concluded there might be laughter in his lunacy. The man of science explained that he had intended to demonstrate with graphic charts and beautiful pictures, but that the City Hall wouldn't permit it. I shudder to think what might have been unfolded before my eyes had not Mr. Bill Thompson and his minions stepped in and preserved my innocence.
>
> "As for 'Streets of Sorrow': The doctor took up so much time that I could stay for only the fore part of the movie. What I saw was a mawkish oversexed overdone, amateurish attempt to depict post-war Vienna. Noting that it featured Greta Garbo, I sought to learn the year of its vintage, but could find no date indicated. Acting, direction, plot, and photography were equally bad. At the point where I made my regretful departure the soulful-eyed Miss Garbo had just accepted extra money from her employer. What thereupon took place or happened to the poor working gel I can only surmise."

In June, 1930, Taylor was putting on his stuff in New Orleans and the papers, at that time, reported that M. Sayle Taylor had been arrested "on the charge of operating a disorderly house." The District Attorney reported that Taylor claimed at first to be a medical man, but this was found to be false, and that he also claimed to be well known in London; this, too, was found to be false. Taylor offered to close up and leave town and as the officials' object was to stop his so-called lectures, he was permitted to do so and the case was dismissed.

When Taylor was in New York in 1929, he was forced by the authorities to drop the title "Dr." before his name. There, apparently, he was working the "stage-presentation" scheme, for according to a report that appeared in the New York *Herald-Tribune* at the time: "At the close of his lecture, the fat, thin, tall, short and normal girls paraded on to the stage in bathing suits," as a *piece de resistance* for the "women-only" audience, Taylor announced, "If you will all just wait, you will see the perfect man." And, as the *Herald-Tribune* stated, "not a woman budged until 'Samsted' had finished his classical posing."

As has already been mentioned, Taylor has for sale a number of little pamphlets that bear such intriguing titles as: "Facts for Wives — Plain Truths About Marriage"; "The Secret of Youth and Charm: Plain Sex Truths for Women"; "Natural Birth Control and Predetermination of Sex"; "How to Know Your Affinity: A Study of Glands"; "Sex Vigor: How Retained; How Regained."

These little brochures (about four inches by six inches in size and from twelve to thirty-two pages) come in highly-colored paper covers and are listed at 50 cents each. They are poorly printed on cheap paper, and when produced in quantities, should not cost more than one cent apiece to turn out.

A study of some of these brings out the interesting fact that the pamphlet, "The Secret of Youth and Charm," which comes in a cream-colored cover, is identical, except for a few additional lines, with "Facts for Wives," which comes in an orange-colored cover. Various booklets repeat entire paragraphs.

Taylor also puts out a little more elaborate book, "The Male Motor," which when bound in cloth is listed at $1.50. It appears that the thing essentially is a treatise devoted to the puffing of a device called the "Thermalaid," a rectal dilator with a rheostat attachment, sold by the Electro Thermal Company of Steubenville, Ohio. Incidentally, the publisher's statement shows that the book is issued from Steubenville, Ohio.

As has already been stated, Taylor sells an alleged douche medicament which used to be called Vagitone, and under that name was put out by the Hygienic Orificial Company, which in its advertising matter sometimes gave its address as 361 West Superior Street, Chicago, and sometimes as 711 Sedgwick Street—two addresses for different entrances to the same building. A few weeks ago, a visit to 361 West Superior Street disclosed that the Hygienic Orificial Company was gone and, apparently, had left no forwarding address. It appears now that M. Sayle Taylor does business from 2029 North Halstead Street, Chicago, under the name La-Fon Laboratories, Inc., said to be successors to the Hygienic Orificial Company, Inc. Further, as has already been stated, the name of his product has been changed from Vagitone to La-Fon.

Recently, M. Sayle Taylor was working Virginia and a telegram was received from a gentleman in Lynchburg, asking for information on this person, who was scheduled for a week's "lectures" in that city. The information was sent and we now learn that Taylor was not permitted to put on his "show." It will be interesting to see just how long Taylor will be able to continue in his present field of endeavor.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

CARDIAC MANIFESTATIONS IN SYPHILIS

To the Editor:—A white man, aged 41, a painter, well developed and nourished, and apparently in excellent health, came to me, Nov. 23, 1931, because of a skin condition over the region of the right temple. This was attributed to a scratch from a barber's comb received about a year ago. Shortly after, a purplish rash developed on the left forearm and persisted. The lesions did not cause symptoms, but because they did not disappear I was consulted. Other than the fact that the patient indulges moderately in beer and alcoholic beverages, and is an inveterate tobacco chewer, the history is entirely irrelevant. Examination revealed an indurated papular lesion over the right temple extending on to the pinna of the ear, and a tuberoserpiginous lesion on the left forearm and on the right nates. An enlarged left epitrochlear gland was palpable, but no other abnormalities were noted. The heart was regular, with a rate of 80 beats a minute; the blood pressure was 128 systolic and 80 diastolic; no murmurs or other adventitious sounds were heard. While there were no viscereal signs evident, a presumptive diagnosis of a tertiary syphilid was made. A Wassermann reaction ascertained by the board of health was reported as 4 plus. Treatment was begun, 1.5 cc. of a bismuth compound being given intramuscularly on November 30 and December 2, 8 and 15. This was alternated with neoarsphenamine intravenously, 0.45 Gm. on December 5 and 12, which was tolerated well. December 19, 0.6 Gm. of arsphenamine was administered intravenously with apparently no immediate ill effects. About twelve hours later the patient began to experience a "jumpy" sensation around the heart, which occurred rather frequently but did not interfere with his work. Examination revealed a marked degree of irregularity with extrasystoles and superimposed beats. The blood pressure was 130 systolic and 70 diastolic. No more neoarsphenamine was given, and the patient is now on a regimen of iodides and mercury and bismuth preparations. The cardiac irregularity persists at the present writing. Would you consider the development of the cardiac signs as evidence of a latent syphilitic myocarditis, activated by the arsenical? What effect would nicotine through the use of chewing tobacco have on the heart? What course of treatment would you outline in view of the condition that has developed? Would you kindly furnish references in the literature pertinent to the development of cardiac irregularities after the use of arsphenamine? Please omit name.

M.D., New York.

Answer.—Syphilitic aortitis is a frequent complication of late syphilis. The information provided in the query as to the patient's physical status before treatment omits two or three important points on which the diagnosis depends. In a patient with known late syphilis, the presence of any three of the following criteria is strong evidence in favor of the diagnosis of syphilitic aortitis: (1) teleroentgenographic and fluoroscopic evidence of aortic dilatation, (2) increased retromanubrial dulness, (3) a history of circulatory embarrassment, (4) a tympanitic bell-like tambour accentuation of the aortic second sound, (5) progressive cardiac failure, (6) substernal pain and (7) paroxysmal dyspnea. Syphilitic myocarditis is probably rare, the myocardial changes that occur in patients with syphilitic heart disease being usually due to the mechanical effects of circulatory embarrassment.

The occurrence of persistent extrasystoles after several injections of neoarsphenamine suggests that the patient may have an unrecognized syphilitic aortitis, and it would be safer to treat the patient as if this diagnosis were definite. This is in spite of the fact that the excessive use of chewing tobacco may cause ventricular extrasystoles as readily as excessive smoking.

In view of the presumptive diagnosis of syphilitic aortitis, it would be advisable to keep the patient on bismuth preparations and potassium iodide for two or three months before any effort is made to give further arsenical drugs. When arsenical drugs are resumed, either neoarsphenamine or sulpharsphenamine bismuth may be used. The dose of neoarsphenamine should not exceed 0.45 Gm. Further treatment should be carried on as outlined in a paper by J. E. Moore and J. H. Danglade on the treatment of cardiovascular syphilis (*Am. Heart J.* **6**:148 [Oct.] 1930). A fluoroscopic and teleroentgenographic examination of the cardiovascular stripe should be done promptly. The further use of alcohol and tobacco should be prohibited.

Cardiac irregularities after the use of the arsphenamines are uncommon and usually occur in patients with preexisting cardiovascular syphilis. The following references may be consulted:

Reid, W. D.: The Mechanism of the Toxic Action of Arsphenamine on the Heart, The Journal, March 21, 1925, p. 883.

Wilson, F. N.; Wile, U. J.; Wishart, S. W., and Herrmann, G. R.: Changes in the Electrocardiogram Following the Arsphenamine Treatment of Cardiac and Aortic Syphilis, *Proc. Soc. Exper. Biol. & Med.* **23**: 275, 1926.

DIGESTIBILITY OF COW'S MILK

To the Editor:—Is there a test which can be applied to a cow's milk to determine how digestible that certain milk is? If so, what is the test, how is it made and just how dependable is it? An intelligent dairyman stated that Dr. Abt of Chicago had recommended the test and that herds had been accumulated all the cows of which gave milk that was easily digested. He also stated that such cows gave such milk throughout their entire lives. He was contemplating getting several cows of this sort and advertising their milk for babies only. The cows he already has are all Jerseys and give a milk high in butter fat and for that reason I have not recommended his milk for my feeders. If such cows do exist, would it be safe to feed a baby a milk with a high butter fat content? I must say that this is all new to me in spite of the fact that I have been doing pediatric work for years and try my darndest to keep in sight of the parade at least. Please omit name.

M.D., Arkansas.

Answer.—There is probably no satisfactory test that can be applied to cow's milk to determine its digestibility. Cow's milk derived from the various races of animals differs in the quantity of fat as well as in protein content.

Van Slyke and Publow give the following analyses: Jersey milk contains 5.78 per cent fat; Guernsey, 5.38 per cent; Ayrshire, 3.76 per cent; Holstein, 3.26 per cent. In addition to this the fat globules in Holstein and Ayrshire milk are small, while those of Guernsey and Jersey milk are considerably larger. The digestibility of the milk in all probability does not depend on these factors alone.

In this connection, however, the bulletin of the Utah Agricultural Experiment Station for June, 1928, written by R. L. Hill, calls attention to an apparatus for measuring curd tension, which is a measure of toughness or softness of the milk curd. Hill believes that he found by this method a plan for determining the digestibility of cow's milk by babies. He believes that the milk with a low curd tension is more readily digested than the milk with a high curd tension, and he observes further that, after having examined many breeds of cattle, all show both extremes in curd tension. He assumes that the curd character of the milk is not a breed characteristic. However, a larger percentage of some breeds give soft curded milk than others. He also thinks that the presence of butter fat in milk tends to soften the curd, and that the fat content of the milk is not an index of its curd character. It is generally agreed that boiling milk increases its digestibility.

It seems fair to assume, however, that the mere softness or hardness of the milk curd will not completely solve the problem of digestibility of cow's milk. The digestive ferments of the infant have been planned to digest breast milk and consequently there may be occasional difficulties on the part of the baby in the digestion of any foreign milk. The digestion of the infant will always depend on the proper development of the necessary ferments in quantity and quality, and its tolerance for food will depend on a sufficient quantity of ferments and on the rapidity of their action.

But, in addition, there are well authenticated cases of cow's milk idiosyncrasies manifested by shock, pallor, vomiting, fever and diarrhea; also skin eruptions, such as urticaria, edema and even purpura. Whether such manifestations would be increased by hard curd or diminished by soft curd is doubtful. It is more reasonable to think that these untoward allergic symptoms depend on a foreign protein reaction.

In the evolution of infant feeding, cow's milk has been peptonized, citrated, precipitated with rennin and reemulsified, and in spite of all these measures some babies have failed to thrive on these foods. In other words, the digestibility of cow's milk, as has just been pointed out, depends on the physiologic function of the baby's digestive tract as well as on the physicochemical characteristics of the milk.

TOXIC EFFECTS FROM DUCO

To the Editor:—I should like some information as to the toxic effect of Duco paint and if there have been any cases reported of toxic amblyopia as an occupational disease among Duco painters. Any literature on this subject that you may cite will be appreciated.

J. W. Shelton, M.D., Oklahoma City.

Answer.—The term "Duco" properly applies only to certain products of the du Pont Company. The exact composition of these coatings is not widely known. Duco consists largely of the acetates of amyl, butyl and ethyl with the diluents denatured alcohol, toluene, butyl alcohol and amyl alcohol. As regards the health features, Duco is not generally different from pyroxylin lacquers that have been in use for many years. A number of cases of poisoning from the use of Duco are mentioned in medical literature. The references follow:

Minnesota Med. J. **9:** 703 (Oct.) 1928.
South. M. & S. J. **90:** 752 (Nov.) 1928.

It is probable that a much greater variety of solvents, thinners and other ingredients enter into some coatings. The following substances have been found in coatings of this general character: methyl (wood) alcohol, isopropyl alcohol, diacetone alcohol, acetone, isopropyl acetate, glycols, lactates, benzene, toluene, xylene, naphtha, tricresyl phosphate and others. Manifestly, methyl alcohol, and to a lesser degree ethyl alcohol, may produce a toxic amblyopia, given sufficient exposure to intake by mouth, lungs or skin. The most likely source of current information is the Committee on Volatile Solvents of the American Public Health Association, which may be approached through its chairman, Dr. Elizabeth B. Bricker, Department of Labor, Harrisburg, Pa.

PERIPHERAL NEURITIS AFTER ARSPHENAMINE

To the Editor:—A man, aged 60, had papulomacular eruptions of secondary syphilis. The Wassermann and Kahn reactions were both 4+. He was given immediately neoarsphenamine, two treatments of 0.6 Gm. and four treatments of 0.9 Gm., followed with ten injections of a mercury compound. Just before the beginning of the mercury treatment he complained of tingling in the finger tips of both hands, more severe on extension of the hand and arm, together with some anesthesia of the palmar surfaces of the fingers. He was in today for a mercury treatment and the symptoms are more noticeable, with extension along the course of the radial nerve in both forearms. He also complained of numbness of the second and third toes on both feet. These symptoms are not severe enough to incapacitate the patient, but they are annoying and seem to be getting progressively worse. There is no Argyll Robertson pupil, the Romberg sign is positive, and the reflexes are normal except that in the right leg they are slow and sluggish. The patient says that the right foot bothers him more than the left. Could the central nervous system become involved at this stage with vigorous treatment with involvement of the posterior roots? Could this be a neuritis due to arsenic from the treatment? As I understand it, secondary lesions of syphilis, early after primary infection, as in this case, are evidence of spirochetal septicemia. If this is true, it seems that the neoarsphenamine would have prevented the central nervous system involvement this early. Please inform me on this case as to diagnosis and treatment. Please omit name and address.

M.D., Kentucky.

Answer.—Peripheral neuritis from arsphenamine is rare but it does occur and the history given indicates it. Antisyphilitic treatment should be suspended and sodium thiosulphate given intravenously daily, in increasing doses beginning with 0.1 Gm. and increasing to 1 Gm. When this dose is reached the treatment should be given only every second day. If not well borne, it should be stopped. The U. S. P. drug should be employed. After several weeks of such treatment, iodides should be given for several weeks, or they can be given at the same time as the injections of the sodium thiosulphate. The parts affected should be kept at rest as nearly as possible, with some form of counterirritation along the affected nerves. After the symptoms of nerve involvement have disappeared, which may take a long time, antisyphilitic treatment should consist of alternating courses of mercury and bismuth compounds, arsphenamine being avoided. Treatment should be mild. Patients of 60 cannot stand the strenuous treatment appropriate for younger ones.

SINUSITIS AND DEAFNESS AS BASIS FOR COMPENSATION

To the Editor:—A man contracted sinusitis during army service. This has continued and lately he has been in poor condition. Please advise me whether the sinusitis would be a probable cause for the deafness, which has gradually developed, and whether it could cause a valvular heart condition or aggravate a previously existing but unknown lesion. Should he be entitled to compensation only for sinusitis, service connected, or should he also claim compensation for either or both of the other conditions as indirectly service connected by reason of a causative factor in the sinusitis?

H. F. Curtis, M.D., Concord, N. H.

Answer.—This sinusitis, which must have persisted for at least thirteen years as it was contracted in the army service, could be the cause of deafness of a catarrhal type. Such deafness, however, is seldom profound, and, should examination of hearing function reveal that the cause of the deafness lies in an involvement of the internal rather than of the middle ear, the chronic sinusitis is probably not the cause. There is a great deal of debate as to whether or not suppuration in the accessory nasal sinuses may act as a focus of infection. The better conservative opinion inclines to the belief that these lesions do not act nearly as often in this capacity as do others, namely, those about the roots of teeth and in the tonsils. It is possible but not probable that a valvular heart condition either springs from or is aggravated by chronic suppurative sinusitis. This individual is certainly entitled to compensation for sinusitis, service connected, and he may be entitled to compensation for the valvular heart condition, but it is highly questionable whether he should be compensated for the latter on the basis that it springs from or is aggravated by the former.

X-RAY DERMATITIS OF SCROTUM

To the Editor:—What effect may result from an x-ray burn on the scrotum? The x-rays were used for the sole purpose of preventing conception. The patient is a man, aged 50. Please omit name.

M.D., Indiana.

Answer.—If the radiodermatitis is of the acute type and of the third degree, it may be associated with severe pain and result in an indolent ulcer. If the ulcer is small, it may heal spontaneously in a few months or a year. If it is large, it may never heal and eventually give rise to malignant cancer. An acute burn of the first or second degree may give rise eventually to x-ray sequelae such as atrophy, telangiectasia and keratoses, and the latter may give rise to malignant cancer. Depending on the amount of x-rays administered, the sterility may be temporary or permanent.

If the radiodermatitis is of the chronic type consisting of x-ray sequelae such as atrophy, telangiectasia and keratoses, the latter may give rise to malignant cancer in anywhere from a few months to twenty years. So-called x-ray skin (chronic radiodermatitis) may at any time ulcerate. Such ulcers may heal spontaneously or they may become indolent and eventually change to malignant cancer.

DANGER FROM HYDROGEN CYANIDE

To the Editor:—I should like to know the danger of hydrocyanic acid formation or any other attendant health hazard from the following procedure: Small steel parts are washed in a 20 per cent sulphuric acid, electrolytic bath, from 2 to 8 volts and from 3 to 5 amperes being used. It has been suggested that these parts be transferred to an electrolytic bath of from 1.25 to 3 per cent sodium cyanide at 180 F. It would seem as though there is definite danger of hydrogen cyanide formation from this bath despite the efficient blower system installed. If this danger exists, would an intermediate bath of hot or cold water or alkali, or combination of both avert this menace? Please use initials only.

M.D., Connecticut.

Answer.—The amount of sulphuric acid carried over from the first to the second bath will largely determine the amount of hydrogen cyanide formed. In the absence of acid, traces of hydrogen cyanide may be formed by hydrolysis, but the amount so produced ordinarily will be taken care of by an efficient blower. Between the two baths, the steel parts should be washed one or more times with hot alkali solutions. It is possible that hot sodium carbonate solutions may serve this purpose. This introduces another but lesser hazard from the sodium carbonate, which is a skin irritant. Sodium bicarbonate solutions are preferable for this purpose, if no industrial incompatibility arises. At any rate, no sulphuric acid should be carried over into the sodium cyanide electrolytic bath.

TRAUMATIC MASTOIDITIS

To the Editor:—Kindly advise me as to the incidence of traumatic mastoiditis. I was called to see a girl, aged 10 years, who was injured, Nov. 13, 1931, by a ladder falling from a roof. The ladder struck her on the left side of the head over the temporal region. Since the injury the child has had attacks of dizziness and violent headaches on the left side. January 6, the left ear began to discharge. Headache and dizziness are still present. There is extreme tenderness over the mastoid antrum, with sagging of the postsuperior canal wall. There is no evidence or history of any preceding sore throat, cold or infection of the upper respiratory tract. I should greatly appreciate some data on this problem.

M.D., Mass.

Answer.—Traumatic mastoiditis in civil life does not occur often, though a number of cases have been reported of mastoiditis following injury of one sort or another. The condition then is often comparable to that of an osteomyelitis in other parts of the body following injury, as noted in the extremities, for instance. After the suppurative process in the mastoid has begun, infection may extend by way of the mastoid antrum and aditus ad antrum into the middle ear and give rise to symptoms of acute otitis media. On the other hand, the process may remain limited to the mastoid bone itself without visible changes of hearing. When definite signs and symptoms of involvement of the mastoid process are present, the operative procedure would be the same as when due to some infection extending to the mastoid cells from the middle ear.

DICK TEST FOR IMMUNITY TO SCARLET FEVER

To the Editor:—Since reading of the work of Rhoads on scarlet fever immunization (The Journal, July 18, 1931) in which he used the five dose scarlet fever toxin preparations approved by the Scarlet Fever Committee, I have been advocating immunization by this method. Some of the local physicians do not approve of it, and I have met considerable opposition since I have recommended this method of immunization. I have read the literature on the subject, and all the reports that I have found have been favorable. Have there been any unfavorable reports as to severe reactions from these approved preparations or as to failures to produce immunity? Is there any doubt at present that the Dick test is a reliable indicator of immunity to scarlet fever?

R. K. Schmitt, M.D., Columbus, Ind.

Answer.—There have been no unfavorable reports as to the results of immunization against scarlet fever by injection of the five graduated doses of the scarlet fever toxin as described in the Rhoads article. There is no doubt that the Dick test correctly made with accurately standardized toxin and observed between twenty and twenty-four hours after the intradermal injection is a reliable indicator of immunity to scarlet fever.

TREATMENT OF LATE SYPHILIS

To the Editor:—A man, now about 60, contracted syphilis from thirty to thirty-five years ago. It was not diagnosed or treated. There is no history of symptoms until about four months ago, when two cutaneous gummas appeared. He consulted me three weeks ago with ulcers where the gummas had broken down, and a 4+ Wassermann reaction. His nervous system and heart are apparently normal; the kidneys are not so good; the arteries are sclerotic, and the teeth and gums are very bad. On potassium iodide, 15 grains (1 Gm.) three times a day, the ulcers have healed. I have referred him to a dentist. What different treatment, if any, is indicated? What is your opinion of bismarsen? Please omit name.

M.D., Connecticut.

Answer.—A man, aged 60, with some kidney impairment must be treated with extra caution. As soon as the tooth infection is cleared up, more active treatment should be given, either mercury or bismuth compounds with small doses of arsphenamine, neoarsphenamine or sulpharsphenamine bismuth (bismarsen). The latter is a valuable and reliable antisyphilitic, suitable for the case in question. The same reactions as are seen with the other forms of arsphenamine must be watched for, and in a patient of this age the state of the kidneys, liver and heart is to be carefully watched. The treatment should be mild.

ETHER IN WHOOPING COUGH

To the Editor:—May I receive information as to the dosage of ether in olive oil, by rectum, the frequency of application, and contraindications, in whooping cough? In the coughs of children, is papaverine more sedative than codeine? Please omit name.

M.D., New York.

Answer.—Equal parts of ether and olive oil are employed except in patients under 1 year of age, when a mixture of 1 part of ether and 3 parts of oil is given. The usual dose is 2 cc. of ether for each year of apparent age, given two, three or even four times daily through an 18 or a 20 (French) rubber catheter for from five to twelve days, according to the response of the patient. Desire to defecate is antagonized by pressure against the anus and elevation of the hips. If, in spite of these precautions, the child defecates within thirty minutes after the injection, the dose is repeated. No contraindications have been noted.

Codeine is more sedative than papaverine in coughs.

LUPUS ERYTHEMATOSUS

To the Editor:—A boy, aged 8 years, had his whole face sunburned two years ago. The parents noticed six months after the burn that, although the face was normal in appearance, the nose was rough. He has been seen by several physicians and treated with salicylic acid, fractional doses of x-rays, and so on. Treatment has had no effect on the lesion. The lower half of the nose is affected in a geographic manner. The skin has a rough appearance, but no scales are present. The color is slightly darker than the normal skin. There are no other lesions on any part of the body. What would be the probable diagnosis and what treatment advisable? Please omit name.

M.D., Texas.

Answer.—The onset after sunburn, location on the nose, roughness without scales and the "geographic" outline suggest a mild lupus erythematosus. The patient should be seen by a skin specialist and a definite diagnosis made made before any treatment is undertaken.

USE OF PHENOL IN NOSE

To the Editor:—My attention has been called to the harmful effects of phenol on the mucous membranes of the nose. The phenol was used as a nasal spray in the strength of approximately 0.5 per cent. Are there any harmful effects to be expected from phenol in this strength, and if so, what are they? Please omit name and city.

M.D., Michigan.

Answer.—Apparently, no definitely harmful effect on the nasal mucous membrane from the use of 0.5 per cent phenol has been noted. As a matter of fact, for many years the late Dr. Sluder of St. Louis used instillations of 0.5 per cent phenol in oil and claimed that only beneficial effects were obtained thereby. Phenol is freely soluble in glycerin and is not precipitated; but when it is dissolved in oil and then allowed to stand, there is some danger of precipitation, so that the lower portion of the solution is more concentrated and might be irritating. It is best, therefore, when administering an oily solution to shake it before using.

"HATBAND" DERMATITIS

To the Editor:—Please inform me whether or not there is any remedy for the so-called hatband dermatitis. For several years I have been seriously annoyed by an itching eruption across my forehead, caused by wearing a hat, and cured only by leaving off hats altogether for a month or more. The area affected, when at its worst, is dry, scaly, red, and covered with very small hard pimples. Lining a hat with cloth aids, but does not prevent, the trouble. My age is 55. Please omit name.

M.D., Illinois.

Answer.—Lining the hat with cloth may fail to bring relief because of perspiration carrying the irritating substance through the cloth. If a small piece of the hatband is fastened on the normal skin for forty-eight hours, a person who is sensitized to this leather will possibly present a patch of dermatitis; or it may be necessary to test the skin of the forehead. Fractional doses of x-rays, one-fourth erythema dose once a week, will hasten the cure of the dermatitis. Then ultraviolet rays should be used until the skin is well tanned. Then a hat with a band made of a different kind of leather should be worn.

USE OF CONVALESCENT WHOLE BLOOD IN MEASLES

To the Editor:—How efficacious and how lasting is the prophylactic treatment of measles by the intramuscular injection of whole blood from an adult or a convalescent patient?

H. C. Liu, M.D., Honolulu, Hawaii.

Answer.—Most reports are favorable as to the effectiveness of prophylactic injections of whole blood from convalescent measles patients or normal adults who previously have had measles. Blood from convalescent patients gives somewhat better protection than blood from normal adults. From 96 to 98 per cent protection may be obtained by the use of pooled *convalescent serum* or whole blood, if given within five days after exposure. The passive immunity procured from such injections is transient, lasting from two weeks to two months. If blood is given between the fifth and the eighth day after exposure a modified form of measles generally results, usually not followed by complications. The immunity following an attenuated attack of measles is probably permanent.

Council on Medical Education and Hospitals

COMING EXAMINATIONS

AMERICAN BOARD FOR OPHTHALMIC EXAMINATIONS: New Orleans, May 9. Montreal, Sept. 19. Sec., Dr. William H. Wilder, 122 S. Michigan Ave., Chicago.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: Written examinations will be held in nineteen cities of the United States and Canada, March 26. The general, oral and clinical examination will be held in New Orleans, May 10. Sec., Dr. Paul Titus, 1015 Highland Building, Pittsburgh.

AMERICAN BOARD OF OTOLARYNGOLOGY: New Orleans, May 9. Sec., Dr. W. P. Wherry, 1500 Medical Arts Bldg., Omaha.

ARIZONA: Phoenix, April 5-6. Sec., Dr. B. M. Berger, 12 N. Central Ave., Phoenix.

COLORADO: Denver, April 6-9. Sec., Dr. Wm. Whitridge Williams, 422 State Office Bldg., Denver.

CONNECTICUT: *Endorsement*. Hartford, March 22. Sec., Dr. Thomas P. Murdock, 147 W. Main St., Meriden.

IDAHO: Boise, April 5. Comm. of Law Enforcement, Hon. Emmitt Pfost, Boise.

ILLINOIS: Chicago, April 12-14. Supt., Mr. Paul B. Johnson, Springfield.

MINNESOTA: *Basic Science*. Minneapolis, April 5-6. Sec., Dr. J. C. McKinley, 125 Millard Hall, University of Minnesota, Minneapolis. *Regular*. Minneapolis, April 19-21. Sec., Dr. E. J. Engberg, 524 Lowry Bldg., St. Paul.

MONTANA: Helena, April 5. Sec., Dr. S. A. Cooney, Power Block, Helena.

NEW MEXICO: Santa Fe, April 11. Sec., Dr. P. G. Cornish, Jr., 221 W. Central Ave., Albuquerque.

RHODE ISLAND: Providence, April 7-8 Dir., Dr. Lester A. Round, 319 State Office Building, Providence.

TENNESSEE: Memphis, March 23-24. Sec., Dr. Alfred B. DeLoach, Medical Arts Bldg., Memphis.

WEST VIRGINIA: Charleston, March 22. Sec., Dr. W. T. Henshaw, Charleston.

WISCONSIN: *Basic Science*. Madison, March 19 Sec., Prof. Robert N. Bauer, 3414 W. Wisconsin Ave., Milwaukee. *Reciprocity*. Milwaukee, April 6. Sec., Dr Robert E. Flynn, 315 State Bank Bldg., LaCrosse.

New York June Report

Mr. Herbert J. Hamilton, chief, Professional Examinations, reports the oral and written examination held at Albany, Buffalo, New York and Syracuse, June 22-25, 1931. The examination covered 9 subjects and included 10 questions. An average of 75 per cent was required to pass. Six hundred and seventy candidates were examined, 585 of whom passed and 85 failed. The following colleges were represented:

PASSED

College	Year Grad	Number Passed
University of Colorado School of Medicine	(1927)	1
Yale Univ. School of Med.	(1928, 2), (1930, 2), (1931, 2)	6
Georgetown University School of Med.	(1930, 7), (1931, 13)	20
George Washington Univ. Med. Sch.	(1929), (1930), (1931, 5)	7
Howard University School of Medicine	(1930, 2)	2
Emory University School of Medicine	(1928)	1
Loyola University School of Medicine	(1930, 3), (1931, 3)	6
Rush Medical College	(1929), (1930), (1931, 4)	6
University of Louisville School of Med.	(1930), (1931, 3)	4
University of Maryland School of Medicine and College of Physicians and [illegible]	[illegible] (1931, 7)	10
Boston University School [illegible]	[illegible] 1, 2)	3
Harvard University Medic[illegible]	[illegible] 931)	2
Tufts College Medical Sch[illegible]	[illegible] 10)	13
University of Michigan Medical School	(1931)	1
St. Louis Univ. School of Med.	(1929), (1930, 2), (1931)	4
University of Nebraska College of Medicine	(1929)	1
Albany Medical College	(1928), (1930), (1931, 17)	19
Columbia University College of Physicians and Surgeons	(1930, 4), (1931, 42)	46
Cornell Univ. Medical College	(1929), (1930, 6), (1931, 29)	36
Long Island College of Medicine	(1930, 4), (1931, 66)	70
New York Homeo. Med. Coll. and Flower Hosp.	(1931, 68)	68
Syracuse University College of Medicine	(1930), (1931, 28)	29
Univ. and Bellevue Hosp. Med. Coll.	(1930, 2), (1931, 105)	107
University of Buffalo School of Medicine	(1930), (1931, 59)	60
University of Rochester School of Medicine	(1931, 11)	11
University o[illegible]	(1931)	1
[illegible]	(1930, 2)	3
[illegible]	(1931, 4),	6
[illegible] Medicine	(1930)	1
[illegible] School of Medicine	(1930)	1
[illegible] of Pennsylvania	(1931)	1
University of Tennessee College of Medicine	(1931)	1
University of Vermont College of [illegible]	[illegible]	1
University of Virginia Department [illegible]	[illegible]	1
University of Alberta Faculty of [illegible]	[illegible]	1
Dalhousie University Faculty of [illegible]	[illegible]	1
Queen's University Faculty of [illegible]	[illegible]	1
Univ. of Toronto Fac. of Med.	[illegible]	7
University of Western Ontario Medical School	(1928)	1
McGill Univ. Fac. of Med.	(1924), (1929), (1930), (1931, 2)	5
Catholic University of Louvain Faculty of Medicine	(1926)	1
Member of the Royal College of Surgeons, England	(1926)	1
University of Athens School of Medicine	(1924)	1
University of Budapest Faculty of Medicine	(1917)	1
Royal Univ. of Bologna Faculty of Med. and Surg.	(1928)	1
University of Portugal Faculty of Medicine	(1925)	1
American University of Beirut School of Med.	(1927), (1929)	2
Osteopaths		12

FAILED

College	Year Grad.	Number Failed
[illegible] Med.	(1929, 2), (1930, 6), (1931, 3)	11
[illegible] of Medicine	(1929), (1930)	2
[illegible] of Med.	(1926), (1927), (1930)	3
[illegible] Medicine	(1930)	1
[illegible]	[illegible] (1929), (1930)	3
[illegible]	(1928)	1
University of Nebraska [illegible]	(1928)	1
Albany Medical College	(1931, 3)	3
Cornell University Medical College	(1931, 3)	3
Long Island College of Medicine	(1931)	1
N. Y. Homeo. Med. Coll. and Flower Hosp.	(1914), (1931, 8)	9
Syracuse University College of Medicine	(1931, 3)	3
University and Bellevue Hospital Medical College	[illegible]	1
University of Buffalo School of [illegible]	[illegible]	2
Temple University School of [illegible]	[illegible]	1
University of Pennsylvania Sc[illegible]	[illegible], (1929)	2
Queen's University Faculty of Medicine	(1930, 2)	2
University of Toronto Faculty [illegible]	[illegible]	1
McGill University Faculty of [illegible]	[illegible]	1
Karl Franzens Univ. Faculty [illegible]	[illegible]	2
University of Vienna Faculty [illegible]	[illegible]	2
Catholic University of Louvain Faculty of Medicine	(1930)*	1
University of Paris Faculty of [illegible]	[illegible]*	1
University of Freiburg Faculty [illegible]	[illegible]	1
University of Jena Faculty of [illegible]	[illegible]	1
National University of Ireland [illegible]	[illegible]	1
Royal University of Catania Fa[illegible]	[illegible]	1
Royal University of Modena Fa[illegible]	[illegible]	1
Royal University of Naples Faculty of Medicine and Surgery	(1923), (1924, 2), (1925, 2),* (1929)*	6
Royal Univ. of Palermo Faculty of Med. and Surg.	(1928)*	1
Royal University of Pavia Faculty of Med. and Surg.	(1921)	1
Royal University of Rome Faculty of Medicine and Surgery	(1925), (1927), (1930)*	3
Moscow State University Faculty of Medicine	(1920)*	1
Osteopaths		11

Mr. Hamilton also reports 179 physicians licensed by endorsement from May 1 to Dec. 1, 1931. The following colleges were represented:

LICENSED BY ENDORSEMENT

College	Year Grad.	Endorsement of
College of Medical Evangelists	(1931)	N. B. M. Ex.
Stanford University School of Medicine	(1921)	Oregon
University of Colorado School of Medicine	(1928)	N. B. M. Ex.
Yale University School of Medicine	(1921)	Connecticut, (1928) Indiana, (1929, 2), (1930) N. B. M. Ex.
Georgetown University School of Medicine	(1922)	Dist. Colum., (1924) Minnesota, (1930) New Jersey
George Washington University Medical School	(1930)	Maryland
Howard University School of Medicine	(1928)	New Jersey, (1930) Maryland, Maryland, Virginia
Atlanta College of Physicians and Surgeons, Georgia	(1913)	Georgia
Emory University School of Medicine	(1923)	Georgia
Hahnemann Medical College and Hospital, Chicago	(1898)	Connecticut
Northwestern University Medical School	(1902)	Illinois
Indiana University School of Medicine	(1928), (1929)	Indiana
State Univ. of Iowa Coll. of Med.	(1920), (1929), (1930, 2)	Iowa
University of Louisville School of Medicine	(1924)	Kentucky, (1930, 2) N. B. M. Ex.
Tulane University of Louisiana School of Medicine	(1925)	Alabama, N. B. M. Ex., (1929) North Carolina
Johns Hopkins University School of Medicine	(1923)	Tennessee, (1915), (1920), (1927), (1930), (1931) Maryland, (1927), (1928), (1929) N. B. M. Ex.
Maryland Medical College, Baltimore	(1904)	Porto Rico
University of Maryland School of Medicine	(1910)	Maryland
University of Maryland School of Medicine and College of Phys. & Surgs.	(1918), (1931, 2)	Maryland, (1928) California
Boston University School of Medicine	(1923)	New Jersey
Harvard University Medical School	(1911)	California, (1920) Georgia, (1903), (1914), (1923) Massachusetts, (1928) New Jersey, (1924), (1925), (1928, 4), (1930) N. B. M. Ex.
Tufts College Medical School	(1926)	N. B. M. Ex., (1927) New Jersey, (1928) Maryland
University of Michigan Dept. of Med. and Surg.	(1911)	Michigan
University of Michigan Medical School	(1921)	Michigan, (1930) N. B. M. Ex.
University of Minnesota Med Sch.	(1913), (1916), (1924)	Minnesota
St. Louis University School of Medicine	(1927)	California, (1929) Tennessee
Washington University School of Medicine	(1922)	Virginia, (1924) Missouri
Columbia University College of Physicians and Surgeons	(1924), (1929)	New Jersey, (1927), (1928, 3), (1929, 3), (1930, 2) N. B. M. Ex.
Cornell University Medical College	(1923)	Connecticut, (1929, 4), (1930) N. B. M. Ex.
Fordham University School of Medicine, New York	(1911)	New Jersey
Long Island College Hospital	(1912)	New Jersey, (1928) N. B. M. Ex.
Syracuse University College of Medicine	(1921)	Porto Rico, (1929) N. Carolina, (1928), (1930) N. B. M. Ex.
University of North Carolina School of Med.	(1906)	N. Carolina
Eclectic Medical College, Cincinnati	(1919)	Ohio
Ohio State University Coll. of Med.	(1923), (1925), (1927)	Ohio
University of Cincinnati College of Med.	(1927), (1930, 3)	Ohio
Western Reserve University School of Med.	(1929)	N. B. M. Ex., Ohio
University of Oklahoma School of Medicine	(1928)	Ohio
University of Oregon Medical School	(1930)	N. B. M. Ex.
Hahnemann Med. College and Hosp. of Philadelphia	(1930)	Maryland
[illegible] of Philadelphia	(1910), (1923)	Penna., [illegible]
[illegible] of Philadelphia	(1899), (1916)	Penna.
[illegible] Dept. of Med.	(1899), (1902)	Penna.

University of Pennsylvania School of Medicine......(1920)	Penna., (1925) Minnesota
University of Pittsburgh School of Medicine.........(1909)	Penna.
Woman's Medical College of Pennsylvania...........(1909)	Penna.
Meharry Medical College.............................(1930)	Tennessee
University of Tennessee Coll. of Med....(1929, 2), (1930, 2)	Tennessee
Vanderbilt University School of Medicine...........(1903)	Tennessee
Baylor University College of Medicine...............(1930)	Texas
University of Vermont College of Medicine..........(1881)	Florida, (1918) [illegible] 930, 2) N. B. M. Ex.
Medical (1926), (1928), (1929, 2)	Virginia, (1926) [illegible]
University of Virginia Dept. of Med. (1925), (1928), (1929)	N. B. M. Ex., (1929, 2) Virginia
[illegible] Med....(1905) Mass., (1924)	Idaho
f Med.......(1920), (1925)	Canada, N. B. M. Ex.
Medical School......(1924)	Canada
edicine...............(1925)	New Jersey
ty of Med., Austria..(1918)*	Diploma
ty of Med., Austria..(1902)	Diploma
f Medicine..(1904),* (1923)*	Diploma
culty of Medicine....(1922)	W. Virginia
lty of Medicine......(1924)	England
of Medicine.... .....(1914)*	England
Medicine............(1896)	Mass.
Medicine.. ....(1923)	Germany
of Medicine.... ...(1922)	Wisconsin
v. Faculty of Med...(1925)	Diploma
University of Budapest and Royal Hungarian University of Science.........................(1898), (1917)	Diploma
Licentiate of the Royal College of Physicians and Fellow of the Royal College of Surgeons, Ireland..(1910)	Ireland
Royal Univ. of Bologna Faculty of Med. and Surg...(1926)*	New Jersey
University of Tomsk Faculty of Medicine...........(1919)*	Mass.
University of Edinburgh Faculty of Medicine.......(1922)	Diploma, (1928, 2) N. B. M. Ex.
University of Barcelona Faculty of Medicine........(1907)*	Porto Rico
University of Berne Faculty of Medicine............(1931)	Maryland
University of Geneva Faculty of Medicine......... (1913)	Diploma
American University of Beirut School of Medicine.. (1911)	Mass.

* Verification of graduation in process.

Book Notices

Tumors of Bone. By Charles F. Geschickter, M.D., Surgical Pathological Laboratory, Department of Surgery, Johns Hopkins Hospital and University, and Murray M. Copeland, M.D., Memorial Hospital, New York City. With forewords by Dean Lewis, M.D., Professor of Surgery, Johns Hopkins Hospital and University, and Joseph Colt Bloodgood, M.D., Clinical Professor of Surgery, Johns Hopkins Hospital and University. Cloth. Price, $5. Pp. 709, with 406 illustrations. New York: American Journal of Cancer, 1931.

This is the first book published under the auspices of the *American Journal of Cancer*. It is a welcome visitor and, it is hoped, will be the precursor or forerunner of others. The volume reflects many of the teachings of the authors' great teacher, Bloodgood, who gave them the opportunity and material. The work covers completely the field of bone tumors and is based on a study of more than 3,600 cases. It gives in detail the clinical picture, roentgenologic features, prognosis, treatment and pathology of the various neoplastic entities. A separate complete chapter is devoted to each type of tumor. Special emphasis is placed on differential diagnosis and the interpretation of roentgenograms. A summary is included in every chapter. The illustrations serve as an atlas of bone tumors. In the foreword, by Dean Lewis, the statement is made that in any case in which a mutilating operation is to be performed a biopsy should be made. If there is any doubt, final judgment should be reserved until the best section that can be prepared is carefully and competently studied. In the second part, Bloodgood states his rules of procedure in regard to bone tumors. The authors emphasize the relationship between bone development and tumor formation, and it will be found that the clinical entities described rest on the type and phase of tissue differentiation represented by the new growths.

The authors state that approximately half of all the primary neoplasms of the bone are related to precartilaginous connective tissue. This combination or transition from connective tissue to cartilage and to bone, seen in all these tumors, not only repeats the sequence by which the skeleton is derived in the embryo but recalls the order of development of the spine in vertebrates and demonstrates effectively the relationship of tumors of the bone to both evolution and embryology. The authors contest the idea that malignant variants of the giant cell tumor arise by gradual transformation from benign giant cell tumor. They believe that these are always forms of osteogenic sarcoma with giant cells that produce bone destruction. The discussion of extraskeletal giant cell tumors includes epulis and xanthoma. The authors state that there are two types of sarcoma of soft parts which are prone to invade the bone by direct extension: fibrosarcoma and neurogenic sarcoma. Both these malignant forms cast a soft part shadow in the roentgenogram and produce osseous destruction, eroding the bone from without inwardly. Bone changes in chloroma and Gaucher's disease are given consideration. In a supplement, Bloodgood considers the therapeutic measures in lesions of bone.

There is a two-page chart on the roentgenographic diagnosis of diseases and tumors of bone, illustrating the salient features of bone diseases and bone tumors. There are chapters on the differential diagnosis of neoplastic and non-neoplastic bone conditions, discussing osteomyelitis, tuberculosis, syphilis, and uncommon diseases of bone, including Brodie's abscess, Garré's *nonsuppurating osteitis, ossifying periostitis,* traumatic myositis ossificans, melorheostosis, osteitis deformans and osteomalacia. Another chapter concerns juvenile bone lesions, including scurvy, rickets, congenital syphilis, osteogenesis imperfecta, fragilitas ossium and marble bones.

The illustrations, including diagrams, roentgenograms and gross and microscopic sections, are numerous and excellent. This long awaited book is a welcome addition to our literature. It can be recommended highly to general surgeons, roentgenologists, pathologists and orthopedic surgeons.

Untersuchungen über das Wirbelgleiten. Von Prof. Hermann Meyer-Burgdorff, Oberarzt der chirurgischen Univ.-Klinik, Rostock. Paper. Price, 15 marks. Pp. 136, with 155 illustrations. Leipzig: Georg Thieme, 1931.

This monograph is the latest on the subject of spondylolisthesis. While the subject is an old one, little literature had accumulated until recently. The author discusses the pathology of spondylolysis and the slipping and the static changes in the pelvis and vertebral column. In an interesting chapter on etiology he attributes most cases to an acquired spondylolysis. The fissure is the result of a chronic bone change (umbau) aided by the lordosis. It may follow vertebral fracture of the lower thoracic and upper lumbar spine. In the chapters on clinical symptoms and on roentgen diagnosis, the author gives numerous detailed case histories. The book closes with a discussion of differential diagnosis and therapy. Spondylolisthesis is an important cause of pain in the back. It may be concealed by symptoms that are not characteristic. Further studies are necessary in the etiology and diagnosis of spondylolisthesis, especially its relation to congenital fissures, the occurrence of fractures of the vertebral arch after trauma and fractures of the vertebra, the course of the dislocation and its spontaneous cure. The greatest aid in the study of these conditions has been the advance in roentgen technic. The author has studied 40 cases of spondylolisthesis and 143 suspected cases. He finds the spondylolisthesis is not really a disease but rather a symptom, which the close observer often discovers incidentally or accidentally. Even in advanced cases the clinical symptoms may not be typical without the roentgen observations. Hence the emphasis in this monograph on the roentgen examination of the patient. The object of the book is to correlate the author's own studies with the known clinical symptoms and the literature on the etiology. The condition was described by Herbinaux in 1782, Rokitanski in 1836 and Kiebisch in 1851. The term spondylolisthesis was coined by Kilian, who considered the condition a gradual dislocation or slipping. In reality, only the body and anterior portion of the arch slip, while the posterior arch and spinous process remain in their old position. The work of Neugebauer, published in 1881, summarized all that was known of the etiology and pathologic anatomy. He was the first to demonstrate that a symmetrical or asymmetrical separation in the arch, at the level of the so-called interarticular portion, must precede the slipping, and that this cleft formation develops in every spondylolisthesis. He looked on the fissure formation as congenital. Meyer-Burgdorff concludes that spondylolisthesis is due to an acquired chronic bone change with fissure formation in the arch and is not congenital; a marked lordosis, and an increased superimposed load on the transverse articulations. Forces acting on the arch in the lumbosacral region are contributing factors. Only rarely is trauma the cause, and then a very severe injury with luxation or subluxation. The condition may be aggravated by a severe injury. Spondylolisthesis often follows fractures of the spine from the eleventh thoracic to the first lumbar, with the resullumbar lordosis and changes in the transverse articulations and adjacent portion of the arch which lead to fissure formation. Treatment should be conservative. The condition tends toward healing after a rest period. Operation accomplishes a similar result and is advisable in severe cases. The illustrations, which include roentgenograms and diagrams, are profuse and excellent. Oblique roentgenograms of the lumbosacral region are shown. The bibliography is extensive. The book should be of value to orthopedic surgeons, roentgenologists and industrial surgeons.

Report of the Preparatory Committee on the Principles Governing the Organisation of Medical Assistance, the Public Health Services and Sanitation in Rural Districts. European Conference on Rural Hygiene. League of Nations, Health Organisation. Series of League of Nations Publications, III. Health, 1931. III. 7. Official No. C. H. 1045. Paper. Price, 2/-; 50 cents. Pp. 62. Geneva: League of Nations; Boston: World Peace Foundation, 1931.

European Conference on Rural Hygiene (June 29th to July 7th, 1931). Volume I: Recommendations on the Principles Governing the Organisation of Medical Assistance, the Public Health Services and Sanitation in Rural Districts. League of Nations, Health Organisation. Series of League of Nations Publications, III. Health, 1931. III. 11^1 Official No. C. 473. M. 202. 1931. III. Paper. Price, 50 cents. Pp. 59. Boston: World Peace Foundation; Geneva: League of Nations, 1931.

In 1930 a committee composed of the leading health workers of Europe was appointed by the League of Nations to study the problem of rural health. The three items mentioned in the title were submitted to different groups of experts, numbering more than fifty in all; their findings are published in the Report of the Preparatory Committee. Later a conference was held at Geneva to which twenty-three European countries sent delegates, and eight countries, including the United States, sent observers. The recommendations of the conference are found in volume I, while the minutes of the conference will appear in volume II. Two thousand persons is the maximum number in a rural community who can be given proper medical attention by a duly qualified medical practitioner. It is desirable that there be a sufficient number of pharmacists to insure proper dispensing of drugs, and of nurses or other qualified auxiliary personnel to work under the direction of the physician. Dispensaries, hospitals and laboratories should be at the disposal of the physician where possible. The public health officer must be a qualified physician but must divorce himself from the private practice of medicine. His rural territory should contain on the average 50,000 inhabitants with a medical assistant for each additional 50,000 of population, and the necessary public health nurses, sanitary inspectors and clerks; the importance of rural health centers is stressed. Sanitation in rural districts is discussed under the headings of sewage disposal, water supply, housing and land improvements. A chapter in the report of the preparatory committee is devoted to sickness insurance as a factor in rural hygiene, prepared by the International Labor Office. A perusal of the two pamphlets makes one realize that the principles of preventive medicine are the same the world over, but methods of practice may vary radically in different countries, according to local conditions. The recommendations were prepared from the result of practical experience, and, while intended primarily for European countries, contain much of value for physicians and health officers in the United States.

Lehrbuch der Röntgendiagnostik. Von H. R. Schinz, W. Baensch und E. Friedl. Nebst Beiträgen von M. Holzmann, A. Hotz, O. Jüngling, E. Liebmann, E. Looser und K. Ulrich. Band I: Skelett; Band II: Innere Organe. Third edition. Paper. Price, 214 marks, per set. Pp. 1-704; 705-1623, with 2714 illustrations. Leipzig: Georg Thieme, 1932.

This is as fine a reference book as is available in any language on roentgen diagnosis. The first volume deals with roentgenologic studies of the osseous system and the second with the internal organs. In addition to a thorough picture of the roentgen observations, the authors have frequent chapters on the associated pathologic changes and the conditions revealed by operation. Full credit is given to the contributions in all other lands, especially America, France and Sweden. There is an excellent chapter giving the latest work in the field of gynecology and pyelography. Many of the roentgenograms have associated sketches of the details for the sake of clearness for one not especially trained in x-ray work. The book is not only excellent for students and practicing physicians but is an exhaustive reference book for radiologists.

Lowered Basal Metabolism—Its Causes and Clinical Significance. By Bernard M. Jacobson, M.D. Fiske Fund Prize Essay, No. 65. Cloth. Pp. 40. Providence, R. I.: Fiske Fund Prize Essay, 1931.

This pamphlet won the Fiske prize of $200 in 1930. It is a study of basal metabolism from the theoretical and clinical points of view. Jacobson defines low basal metabolism "as that caloric output determined under standard conditions which, when compared with the accepted standards of normal metabolism, is definitely depressed." Attention is called to the deficiencies and errors in computing basal metabolism because of the lack of sufficient standards in the very young and old, the variations of metabolism produced by sleep and the different results obtained, depending on whose standard is adopted. He rightfully points out an interesting fact that often a lowered metabolic rate may be the normal rate for that individual. The appearance of symptoms of hyperthyroidism is then accompanied by what is accepted as the normal rate but in fact is an increased rate for that individual. Such information is not new to those acquainted with variations in temperature elevation and blood pressure. There are chapters on the physiologic causes of low basal rate, such as race, climate, sleep and the pathologic causes, as cretinism, myxedema and postoperative hypothyroidism. The author discusses the pulse, the blood pressure, electrocardiograms, respiratory minute volume, spinal fluid, perspiration, cholesteremia, the effects of lowered metabolism on body weight, and their association with diseases of other endocrine glands, nephrosis, anemia and certain diseases of the nervous system. The work does not represent original investigation but is the result of a careful study of the literature. The bibliography is extensive. No claim can be made for this little volume as a contribution to our knowledge but it represents the type of critical work of the young man that should be encouraged.

Oclusión coronaria brusca y lenta. Por los Doctores T. Padilla, professor suplente de la Facultad de Medicina, y P. Cossio, venia docente de la Facultad de Medicina. Prólogo del Prof. C. Bonorino Udaondo. Paper. Pp. 268, with 94 illustrations. Buenos Aires: "La Semana Medica," Imp. de obras de E. Spinelli, [n. d.].

The authors state that the first report on a case of coronary occlusion in Argentina was in 1927. It seems remarkable, therefore, that within four years from that time there would appear two such excellent monographs on this subject as the one by Battro, which was reviewed a few months ago, and the present volume. The present volume contains an unusually good and comprehensive digest of the subject. This is based on a personal experience with thirty-three cases and a familiarity with the literature both early and recent. The manner of presentation is scholarly, clear, concise. After an interesting historical review the anatomy and physiology of the coronary artery are discussed, there being several helpful diagrams. Then follow chapters on experimental work, pathology and etiology. The second part of the work is devoted to clinical features, classification, complications and results of occlusion, diagnosis, prognosis and treatment. Much attention is paid to electrocardiography and there are many illustrations covering this phase of the subject. One feature that distinguishes this book is that the authors do not limit their discussion to the acute forms of coronary occlusion but consider as well the slowly developing types. They also aim to show the relation between the anatomic lesions and the resulting symptoms. In fact, as is stated in a prologue written by Udaondo, this is the fundamental idea of the book. The authors largely follow the views of Barnes and Whitten as to electrocardiographic identification of the location of infarcts based largely on the work of Parkinson and Bedford. The desire to establish this relation has perhaps led to an overrefinement of classification, a too definite assignment of cases to particular groups and to particular stages of the disease supposedly revealed by symptoms and electrocardiograms. Such classifications, useful as an aid in understanding the subject oneself or in imparting knowledge to others, are often found to be illusory when the attempt is made to apply the rules in practice. There is also a vagueness and uncertainty of the rules for prognosis, though one might find it difficult to substitute anything better. There is an oversanguine advising of polypharmaceutic drug treatment. Yet, taken as a whole, the book is to be commended as a scientific, sane and scholarly contribution to medicine.

Institute for Child Guidance Studies. Selected Reprints. Edited by Lawson G. Lowrey, M.D. Cloth. .Price, $1.50. Pp. 290. New York: Commonwealth Fund, 1931.

The Institute for Child Guidance was organized in 1927 under the auspices of the Commonwealth Fund as a center for training psychiatrists, psychologists and social workers in the technic of child guidance. From time to time various members of the staff have published articles concerning their work. These articles are now collected in one volume for general distribution. The studies are quite practical and will mean much to those interested in child training. They concern not only contributions to the social field but also distinctly medical studies having to do with the complexes, restlessness, delinquency, finger sucking and mental hygiene. One of the most significant essays is the final contribution, by Dr. Lowrey, on the profession of parenthood. It offers a guide and a stimulus to thought for every one who assumes the responsibility for a child's growth and education.

Stereoskopischer Atlas der äussern Erkrankungen des Auges nach farbigen Photographien für Studium und ärztliche Fortbildung mit begleitendem Text. Von Karl Wessely, Professor in München. Lieferung 4, Bild 31-40. Boards. Price, 12 marks. Munich: J. F. Bergmann, 1931.

This is the fourth of the series of colored stereoscopic photographs of diseases of the external eye and is fully up to the standard set by the preceding series. The conditions shown are pterygium, epithelial tumor of the limbus, lacrimal fistula following injury, xerophthalmos following trachoma, melanosarcoma of the choroid, tuberculous iritis, zonular cataract, calcified luxated lens, metallic foreign body in the anterior chamber, and vaccinia of the eyelids. The photographs are actual stereos in color, reproduced by a new process that permits of high color fidelity except in the higher magnification, in which the grains of the photographic emulsion become too plainly visible. Needless to say, the reproductions of the clinical processes are absolutely accurate and the colors add much to the teaching values. On the back of each plate is a short description of the case in English (good English and not "as she is wrote"), German and French.

History of Medicine in the Province of Quebec. By Maude E. Abbott, B.A., M.D. Cloth. Price, $3. Pp. 97, with illustrations. Montreal: McGill University, 1931.

Here is a record of the development of medical science in the province of Quebec from the discovery of Canada in 1534 to the present date. It is based on material collected by Dr. Ahern, which he was prevented from publishing because of death and which covered the period up to 1800. The material since 1800 and all the compilation and writing are the work of Dr. Abbott. The book is handsomely illustrated, but the typography includes a wide column with closely printed type, which makes rather difficult reading. The author has chosen well from the available material, and the data may be depended on as accurate. It is interesting to note that following the introduction of ether in Massachusetts in 1846 it was used in an operation on a woman in Montreal in January, 1847. Several brief biographic sketches are of particular interest and the facts regarding various hospitals, societies and periodicals are all made available.

Le pouls alternant: Étude clinique et essai de pathogénie. Par Marcel Poumailloux, chef de clinique à la Faculté de médecine de Paris. Préface du Dr. Ch. Laubry. Paper. Price, 35 francs. Pp. 239, with 18 illustrations. Paris: Masson & Cie, [n. d.].

The author rehearses the views of former writers, such as Gaskell, Hering and Gravier, who have explained the alternating pulse on the basis of abnormal cardiac conditions. These views he regards as invalid in a large proportion of cases. He credits Wenckebach, who advanced the hemodynamic theory, with first calling attention to the rôle of the arteries in pulsus alternans. Poumailloux elaborates this theory, supporting it by clinical and experimental studies. He believes that, in many instances in which an examination of the heart alone by auscultation or electrocardiography fails to show the alternation, a study of the arteries will reveal the seat of the phenomenon. The state of the vascular system, particularly "vascular plethora," together with that of the nerves that regulate the peripheral vessels, should be given more attention if one is to understand this condition. There is a chapter devoted to practical considerations. The author contends that the alternating pulse should not too dogmatically be regarded as of evil omen and as a sure harbinger of early death. It will be interesting to see whether these views are accepted when they are subjected to later experimental and clinical tests by others.

The Mind and Its Body: The Foundations of Psychology. By Charles Fox, Director of the Training of Schoolmasters in the University of Cambridge. Cloth. Price, $3.50. Pp. 316. New York: Harcourt, Brace & Company, 1932.

The author has previously written several excellent contributions to the field of psychology. The present volume is planned to provide a consideration of the subject for advanced readers. The author provides a discussion of various theories in this field and, after considering what has been learned of animal and human psychology, discusses such special topics as the psychology of language and of temperament, the importance of instinct, the meaning of dreams, and hallucinations and illusions. The work is profound and not to be confused with popular considerations. From the point of view of psychology the author defines and explains freedom of the will and offers an understanding of the immortality of the soul. Dr. Fox finds the body and mind so intimately bound that their separation is inconceivable. Nobility of soul arises from the pursuit of what is of permanent worth. Beyond that, he says, "The question of the immortality of the soul can only be discussed in terms of concepts derived from religion."

Semiología de la onda t del electrocardiograma y su interpretación clínica. Por Antonio Battro. Trabajo correspondiente al segundo año de adscripción a la Cátedra de Clínica Médica. Paper. Pp. 121, with 66 illustrations. Buenos Aires: Sebastián de Amorrortu, 1931.

This monograph is based chiefly on a critical survey of the literature. Apparently there is not one of the 167 articles listed in the bibliography to which at least one reference is not made in the text. Besides, the author has made studious observations of his own. The nature of the T wave is discussed together with its variations under normal conditions. Then there are taken up the effects of drugs, heat and cold, together with the alterations due to nervous influences. Following this there is considered the T wave as seen in such diseases as pericarditis, myocarditis, angina pectoris, coronary occlusion and valvular lesions. There are many well selected electrocardiograms. The cardiologist will find the book both stimulating and helpful.

Notes on Children's Nursing. By Marguerite C. Erxleben, R.N., B.S., Director of Instruction, The Children's Hospital of Philadelphia. Fabrikoid. Price, $2. Pp. 242, with 43 illustrations. Philadelphia: F. A. Davis Company, 1931.

This is a concise collection of nursing procedures for the care of children in the hospital and dispensary. The complete and general nursing care in any one ailment is not discussed. For this reason its value is confined to that of a supplementary textbook for student and graduate nurses. The subject matter covered is presented in a clear and efficient manner. The materials required for each nursing procedure are conveniently listed along with a short discussion of the method. The part devoted to nursing care of the premature infant does not appear to be adequate for this highly important branch of pediatric nursing. As a collection of notes on children's nursing it serves its intended purpose, but it will be of practical interest only to those engaged in institutional work.

Manuel des calculs de laboratoire: Précision. Discussion et interprétation des résultats expérimentaux à l'usage des chimistes, biologistes et physico-chimistes. Par H. Vigneron. Préface de P. Pascal, correspondant de l'Institut. Paper. Price, 40 francs. Pp. 183, with 45 illustrations. Paris: Masson & Cie, 1931.

This work is of value to those who desire to review their courses in college mathematics. It deals particularly with methods of calculating results of precision measurements as used in quantitative and in theoretical chemistry. The author takes up for first consideration the important theory of errors in chemical calculations. This is followed by interpretation of experimental results, followed by a more mathematical discussion of interpolations. Considerable space is devoted to the discussion of experimental results from a mathematical rather than a chemical standpoint. This is most appropriately a book for those in close contact with physical or physical-organic investigations

Medicolegal

Physician's Right to Refuse to Treat a Case

(Childers v. Frye (N. C.), 158 S. E. 744)

Childers fell from a rapidly moving automobile. He was picked up unconscious and taken immediately to a hospital operated by the defendant-physician. While he was being removed into the hospital, an attendant asked whether he was drunk. She was told that he might have been drinking, but that he was not drunk. When the physician-defendant first saw the patient he called attention to the fact that he had been drinking and at his suggestion one of Childers' companions smelled Childers' breath. The physician-defendant dressed the patient's right eye, examined his arms and legs, felt his head, and then informed his companions that that was all that he could do. He directed that the patient be taken home, threatening that if that was not done he would turn the patient over to the police. A few hours after the patient reached home, a physician was called in, and later a second physician. The patient died, however, a few days later. His mother, as administratrix of his estate, sued the defendant-physician, on the theory that he failed to make a proper examination of the patient in order to discover the extent of his injuries and negligently abandoned the treatment of his patient. The physician-defendant filed an answer denying that he had accepted the injured person as a patient and alleging that he was brought to the defendant's hospital temporarily in an intoxicated and unconscious condition; that his companions took him home with instructions from the defendant to return him to the hospital after he was sober; and that he was never returned to the hospital, nor was the defendant ever requested to render further services. The patient's companions denied that they had heard the defendant say anything about bringing the patient back to the hospital if he did not get better. A judgment of nonsuit was entered, and the plaintiff appealed to the Supreme Court of North Carolina.

The question of law to which all others are subsidiary, said the Supreme Court, is whether there was sufficient evidence to be submitted to the jury, tending to establish the relationship of physician and patient between the deceased and the defendant. A physician is not bound to render professional services to every one who applies, and he may by notice or special agreement limit the extent and scope of his employment. As a physician cannot make a contract with an unconscious person, the ultimate test of liability in a case like the present one depends on whether the physician actually accepted a person as a patient and undertook to treat him. If there is conflicting testimony, it would be for a jury to decide whether there was or was not such an undertaking or acceptance by the physician. In the present case, all evidence tends to show that when the injured man was brought into the hospital the defendant looked him over and on discovering that the patient had been drinking declined to accept him as a patient or to undertake the necessary treatment. Even if the defendant was not justified in assuming that the patient was drunk, still the law did not compel him to accept the injured man as a patient. Furthermore, there is no evidence tending to show that the refusal of the defendant to accept the injured man as a patient or to make a more thorough examination of him was the proximate cause of his death, especially in view of the fact that the patient was treated by two physicians possessing and employing, so far as the record discloses, all requisite skill and care. The judgment of nonsuit entered in favor of the defendant-physician by the trial court was affirmed.

Malpractice of Dentist Not Provable by Testimony of Physician.—Rawleigh sued Donoho, a licensed dentist, to recover damages for malpractice, alleging that the dentist, in extracting an impacted tooth, fractured his jaw. Rawleigh, the patient, called a licensed physician as a witness. The physician, after stating his professional qualifications and his experience in reading and interpreting roentgenograms, was handed two roentgenograms of the tooth extracted, taken prior to the extraction. He was then asked to examine the roentgenograms and state whether or not, in his opinion, the location of the impaction could be determined therefrom with a certainty sufficient to permit the proper performance of an extraction. The trial court sustained an objection to the question, and on appeal its ruling was affirmed by the Court of Appeals of Kentucky. In malpractice actions against dentists, said the Court of Appeals, experts skilled in the dental profession are the only witnesses qualified to testify as to whether or not there was negligence in a particular method of treatment. The testimony indicated that the witness was neither an expert skilled in the dental profession nor otherwise qualified to render an opinion as to whether or not the roentgenograms indicated the impaction with sufficient certainty to allow the extraction to be properly performed. Although the witness was a physician, he had had no such experience as would qualify him to testify as an expert with respect to the matter submitted to him.—*Rawleigh v. Donoho (Ky.), 38 S. W. (2d) 227.*

Society Proceedings

COMING MEETINGS

American Medical Association, New Orleans, May 9-13. Dr. Olin West, 535 North Dearborn Street, Chicago, Secretary.

Alabama, Medical Association of the State of, Mobile, April 19-22. Dr. D. L. Cannon, 519 Dexter Avenue, Montgomery, Secretary.

American Association for Thoracic Surgery, Ann Arbor, Mich., April 18-20. Dr. Duff S. Allen, 3720 Washington Blvd., St. Louis, Sec'y.

American Association of Anatomists, New York, March 24-26. Dr. George W. Corner, University of Rochester School of Medicine, Rochester, N. Y., Secretary.

American Association of Pathologists and Bacteriologists, Philadelphia, April 28-29. Dr. Howard T. Karsner, 2085 Adelbert Road, Cleveland, Secretary.

American Association of Physical Anthropologists, Washington, D. C., March 21-23. Dr. D. J. Morton, 632 W. 168th St., New York, Sec'y.

American Climatological and Clinical Association, Atlantic City, May 5-7. Dr. Arthur K. Stone, Auburn Street, Framingham Center, Mass., Secretary.

American College of Physicians, San Francisco, April 4-8. Mr. E. R. Loveland, 133 South 36th Street, Philadelphia, Executive Secretary.

American Dermatological Association, Havana, Cuba, May 3-5. Dr. William H. Guy, 500 Penn Avenue, Pittsburgh, Secretary.

American Gastro-Enterological Association, Atlantic City, May 2-3. Dr. Charles G. Lucas, 307 West Broadway, Louisville, Secretary.

American Physiological Society, Philadelphia, April 28-30. Dr. Arno B. Luckhardt, 5216 Greenwood Avenue, Chicago, Secretary.

American Proctologic Society, Memphis, May 6-7. Dr. Curtice Rosser, 710 Medical Arts Building, Dallas, Texas, Secretary.

American Society for Clinical Investigation, Atlantic City, May 2. Dr. Cyrus C. Sturgis, Simpson Memorial Institute, Ann Arbor, Mich., Secretary.

American Society for Experimental Pathology, Philadelphia, April 28-30. Dr. C. Phillip Miller, Jr., University of Chicago, Chicago, Secretary.

American Society for Pharmacology and Experimental Therapeutics, Philadelphia, April 27-30. Dr. V. E. Henderson, University of Toronto, Toronto, Secretary.

American Society of Biological Chemistry, Philadelphia, April 28-30. Dr. H. B. Lewis, University of Michigan Medical School, Ann Arbor, Secretary.

American Society of Clinical Pathologists, New Orleans, May 6-9. Dr. A. S. Giordano, 531 North Main Street, South Bend, Ind., Secretary.

Arizona State Medical Association, Globe, April 21-23. Dr. D. F. Harbridge, 407 Goodrich Building, Phoenix, Secretary.

Arkansas Medical Society, Little Rock, April 5-7. Dr. William R. Bathurst, 814 Boyle Building, Little Rock, Secretary.

Association of American Physicians, Atlantic City, May 3-4. Dr. James H. Means, Massachusetts General Hospital, Boston, Secretary.

California Medical Association, Pasadena, May 2-5. Dr. Emma W. Pope, 450 Sutter Street, San Francisco, Secretary.

District of Columbia, Medical Society of the, Washington, D. C., May 4-5. Dr. C. B. Conklin, 1718 M Street, N. W., Washington, D. C., Secretary.

Florida Medical Association, Sarasota, May 3-4. Dr. Shaler Richardson, 111 West Adams Street, Jacksonville, Secretary.

Iowa State Medical Society, Sioux City, May 4-6. Dr. Robert L. Parker, 3510 Sixth Avenue, Des Moines, Secretary.

Kansas Medical Society, Kansas City, May 3-5. Dr. J. F. Hassig, 804 Huron Building, Kansas City, Secretary.

Maryland, Medical and Chirurgical Faculty of, Baltimore, April 26-27. Dr. Walter Dent Wise, 1211 Cathedral Street, Baltimore, Secretary.

Medical Society of the Missouri Valley, Omaha, Neb., March 29-31. Dr. Joseph D. McCarthy, 107 South 17th Street, Omaha, Secretary.

Mississippi State Medical Association, Jackson, April 12-14. Dr. T. M. Dye, Clarksdale, Secretary.

North Carolina, Medical Society of the State of, Winston-Salem, April 18-20. Dr. L. B. McBrayer, Southern Pines, Secretary.

Ohio State Medical Association, Dayton, May 3-4. Mr. Don K. Martin, 131 East State Street, Columbus, Executive Secretary.

South Carolina Medical Association, Columbia, April 19-21. Dr. E. A. Hines, Seneca, Secretary.

Tennessee State Medical Association, Memphis, April 12-14. Dr. H. H. Shoulders, 706 Church Street, Nashville, Secretary.

Texas, State Medical Association of, Waco, May 5-7. Dr. Holman Taylor, Medical Arts Building, Fort Worth, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Issues of periodicals are kept on file for a period of five years only. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending, but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Clinical Pathology, Baltimore

2: 1-72 (Jan.) 1932

Relations and Functions of Clinical Pathologist in Hospital Staff. D. Riesman, Philadelphia.—p. 1.
*Prophylactic Vaccination Against Tularemia. L. Foshay, Cincinnati.—p. 7.
*Experimental Production of Agranulocytosis. R. R. Kracke, Emory University, Ga.—p. 11.
Simple Medium for Isolation of Bacteria of Typhoid and Dysentery Groups. J. C. Small and W. A. Kreidler, Philadelphia—p 31.
*Precipitin Test for Diagnosis of Meningitis. W. A. Kreidler and Margaret E. Murphy, Philadelphia.—p. 33.
Analysis of One Thousand Five Hundred and Thirty-Five Autopsies. O. A. Brines, Detroit.—p. 37.
*Focal Cyclic Growth as Factor in Production of Nodular Goiter. B. Markowitz, Bloomington, Ill.—p. 57.
Modified Silver Stain for Treponema Pallidum. Elena de Galantha, Rochester, Minn.—p. 63.

Prophylactic Vaccination Against Tularemia.—Foshay discusses his experience with prophylactic vaccination against tularemia and describes a method for making an adequate, relatively nontoxic antigen. He believes that prophylactic vaccination will effectively protect man against laboratory infections of tularemia.

Experimental Production of Agranulocytosis.—Kracke states that agranulocytosis is a clinical entity whose pathology is probably primary in the bone marrow, followed by sepsis, which may be either local or general, or followed by no evidence of sepsis. He describes experiments in which he noted that subcutaneous injections of benzene and olive oil (if given in sufficiently small doses, so as not to affect the erythroblastic tissues) resulted in the development of clinical agranulocytosis in rabbits. The smaller the dose, the more selective became the affinity for the myelocytic tissues. The course of the condition seemed to be similar to that seen in human beings; that is, first a neutropenia, then generalized infection from organisms already present, or from organisms introduced. Agranulocytosis with subsequent infection and without infection was produced by the subcutaneous injection of benzene without olive oil and also by the intraperitoneal injection of benzene. Benzene inhalations failed to depress the leukocyte count. The intravenous injection of benzene even in small doses resulted in the immediate death of the animal, so it is probable that oxidation products of benzene are directly responsible for its leukocyte depressing properties. Agranulocytosis can be produced with benzene in a rabbit having a leukocytosis. The author believes that, although the etiology of granulocytosis is unknown, the benzene ring must be strongly considered. He recommends that those who have the opportunity to study this disease direct their attention to a careful history of possible contact with substances producing granulopenia, bearing in mind that when the patient consults the physician he presents the terminal stage of a disease that possibly began months before.

Precipitin Test for Diagnosis of Meningitis.—Kreidler and Murphy describe a rapid and accurate precipitin test for use in the diagnosis of meningitis. The precipitin test on meningitic spinal fluids renders possible the reporting of the causative organism and also the commercial serum most suitable for treatment within thirty minutes after the specimen reaches the laboratory. The authors have checked the precipitin tests with agglutination tests whenever possible and results have agreed consistently. In five cases studied in which the cultures were negative, thus rendering an agglutination test impossible, the precipitin test was positive. This fact and the possibility of returning an almost immediate report are advantages of the precipitin test in the diagnosis of meningitis that justify its use in the routine examination of spinal fluid in cases of suspected meningitis.

Cyclic Growth in Nodular Goiter.—According to Markowitz, there are two distinct processes in the physiology of the thyroid which produce a constant hyperplasia-involution cycle; namely, (1) process of thyroid secretion—active with hyperplasia, and (2) process of accumulation of colloid—passive with involution. These two processes occur as functional cycles and when in disproportion produce nodulation. In diffuse hyperplastic or exophthalmic goiter, the process of secretion overwhelms the process of colloid storage. Finally, late in the disease, this colloid storage replaces the secretion at focal points with production of nodules. In nodular colloid goiter the process of colloid storage overwhelms the process of secretion. But at focal points the secretory phase continues and is not replaced by colloid storage with production of nodules. In nodular hyperplastic goiter there is overgrowth of both processes, with colloid storage replacing thyroid secretion at focal points early in the disease with production of nodules.

American Journal of Ophthalmology, St. Louis

15: *1-94 (Jan.) 1932*

*Elective Localization in Determining Etiology of Chronic Uveitis. E. C. Rosenow and A. C. Nickel, Rochester, Minn.—p. 1.
*Considerations Underlying Experimental Production of Uveitis. A. L. Brown, Cincinnati.—p. 19.
*Study of Syphilis in Etiology of Uveitis. P. A. O'Leary, Rochester, Minn.—p. 24.
Infections of Upper Respiratory Tract in Etiology of Uveitis. J. E. MacKenty, New York.—p. 27.
New Diagram for Testing Binocular Diplopia. R. Castroviejo, Chicago.—p. 33.
Epinephrine in Progressive Myopia: III. Phase of Pupillary Reaction. L. L. Mayer, Chicago.—p. 35.
Progress in Medical and Surgical Treatment in Ophthalmology. W F. Hardy, St. Louis.—p. 37.

Elective Localization in Chronic Uveitis.—In many cases streptococci having elective localizing power have been isolated by Rosenow and Nickel in uveitis, especially in the acute form. Different foci have been found. The most frequent were teeth, tonsils, prostate or cervix. Removal of these foci, and treatment with autogenous vaccines prepared from the involved eyes of rabbits that had received injections, have been generally efficacious.

Experimental Production of Uveitis.—Brown calls attention to the difference between producing, experimentally, isolated inflammations of the uveal tract and recurring uveitis. The literature on the subject is briefly reviewed. Several series of experiments are reported in which eyes were sensitized by injecting various antigens into the anterior tissues of the eye and attacks of uveitis were produced on introducing the same antigen into other parts of the animal several days later.

Syphilis in Etiology of Uveitis.—O'Leary presents data which indicate that 6 per cent of patients with uveitis have syphilis, that treatment for syphilis brings about material improvement in the uveitis in 33 per cent, and that it affords slight benefit in an additional 28 per cent. The patients with the anterior type of uveitis as a rule respond more favorably. Deductions as to the part syphilis plays in the production of uveitis, based on the therapeutic effect, are hazardous, not only because of the fact that ocular syphilis is notoriously resistant to treatment but because nonspecific benefit was derived in 42 per cent of a group of patients who had uveitis but did not have syphilis. The incidence of syphilis among patients who have uveitis compares favorably with the general incidence of syphilis in the Mayo Clinic. Evidence was not found in the literature that *Spirochaeta pallida* is the cause of uveitis in the same sense that it is the cause of interstitial keratitis. There are, however, numerous references to syphilis as an etiologic factor in uveitis. It appears that in a small percentage of cases the etiology of uveitis is syphilis, and that antisyphilitic treatment is of benefit in 61 per cent of these cases of syphilis. In 42 per cent of the cases in which syphilis is not a factor, antisyphilitic remedies are of definite benefit also.

American Journal of Physical Therapy, Chicago

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Functional Neuroglandular Radiotherapy, Especially of Region of Suprarenal Capsules. R. Desplats, Lille, France.—p. 267.
Technic of Diathermic Epilation. H. Bordier, Lyons, France.—p. 273.

American Journal of Physiology, Baltimore

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Studies on Electrical Stunning of Dogs. A. C. Ivy and F. S. Barry, Chicago.—p. 298.
Graphic Analysis of Frog Heart Tracings. C. C. Stewart, Rochester, Minn.—p. 308.
Absorption of Tyramine from Intestine. C. L. Coyle and T. E. Boyd, Chicago.—p. 317.
Responses in Isolated Limbs of Crustacea and Associated Nervous Discharges. T. C. Barnes, Boston.—p. 321.
Mechanism of Ovulation in Rabbit: V. Effect of Direct Intrafollicular Injections of Extracts of Urine of Pregnancy. M. H. Friedman, Philadelphia.—p. 332.
Electrical Resistance Changes in Dying Voluntary Muscle of Rabbits. A. Hemingway and D. A. Collins, Minneapolis.—p. 338.
*Nonessentiality of Posterior Hypophysis in Parturition. P. E. Smith, New York.—p. 345.
Comparative Sensitivity of Reproductive Tracts of Hypophysectomized and Ovariectomized Rats to Follicular Hormone. P. E. Smith, New York.—p. 349.
Quantitative Study Relating Magnitude of Pulmonary Ventilation to Impairment of Oxidations Produced by Intravenous Injection of Acid and Sodium Cyanide. Marie Pelecovich, Ann Arbor, Mich.—p. 357.
*An Accessory Regulation of Acid-Base Equilibrium and Pulmonary Ventilation by Virtue of Lactic Acid Changes in Liver. G. S. McClure, Ann Arbor, Mich.—p. 365.
Late Effects of Section of Vagus Nerves on Gastric Acidity. Frances R. Vanzant, Rochester, Minn.—p. 375.
Influence of Diet and Anterior Pituitary Growth Hormone on Growth Rate of Adolescent Rats. A. H. Bryan and D. W. Gaiser, Boston.—p. 379.
Blood Regeneration Studies: II. Observations on Blood of Normal Dogs with Especial Reference to Measurement of Volume, Erythrocytes, Leukocytes and Nitrogenous Constituents. Jane M. Leichsenring, Alice Biester, Hortense H. Hönig, Sparkle M. Furnas, Edith S. Foss and M. Virginia Routt, Minneapolis.—p. 391.
Studies on Conditions of Activity in Endocrine Organs: XXVIII. Some Effects of Sympathin on Nictitating Membrane. A. Rosenblueth and W. B. Cannon, Boston.—p. 398.
Glycolysis and Oxidation of Sugar in Blood, Incubated and Circulating "in Vitro." E. W. H. Cruickshank and C. W. Startup, Halifax, N. S.—p. 408.
Hypertrophy of Gastro-Intestinal Tract and High Residue Diets. T. Addis, San Francisco.—p. 417.
Sedimentation of Erythrocytes Suspended in Lymph. J. Russell and T. E. Boyd, Chicago.—p. 424.
Rate of Disappearance of Glycogen During Contraction of Perfused Heart of Rabbit. W. E. MacPherson, H. E. Essex and F. C. Mann, Rochester, Minn.—p. 429.
*Some Chemical Effects from Constant Intravenous Epinephrine Injection in Dogs. P. C. Samson and H. R. D. Jacobs, with assistance of Hulda Rohde, Chicago.—p. 433.
Effect of Sympathectomy on Sexual Functions, Lactation and Maternal Behavior of Albino Rat. Z. M. Bacq, Boston.—p. 444.
Increased Metabolism of Sartorius Muscle of Frog Following Exposure to Roentgen Radiation. W. O. Fenn and W. B. Latchford, Rochester, N. Y.—p. 454.
Variations in Blood of Rabbits from Birth to Maturity. M. M. Kunde, M. F. Green, E. Changnon and E. Clark, Chicago.—p. 463.
*Blood Changes in Experimental Hypothyroidism and Hyperthyroidism (Rabbit). Margarete M. Kunde, M. F. Green and G. Burns, Chicago.—p. 469.
Testicular Degeneration Due to Inadequate Vitamin A in Cases Where E is Adequate. H. M. Evans, San Francisco.—p. 477.
Studies in Physiology of Exercise: VIII. Chronic Effects of Running and Swimming on Hearts of Growing Dogs as Revealed by Roentgenography. A. H. Steinhaus, J. P. Kirmiz and K. Lauritsen, Chicago.—p. 487.
Id.: IX. Chronic Effects of Running and Swimming Exercise on Hearts of Growing Dogs as Determined Electrocardiographically. A. H. Steinhaus, R. W. Boyle and T. A. Jenkins, Chicago.—p. 503.
Id.: X. Effects of Running and Swimming on Organ Weights of Growing Dogs. A. H. Steinhaus, Loris A. Hoyt and H. A. Rice, Chicago.—p. 512.

Posterior Hypophysis Not Essential in Parturition.—Smith removed the posterior hypophysis in adult female rats and noted the effect on parturition. The completeness of the ablation was verified by a microscopic examination of serial sections of the pituitary capsule and its contents. In all cases some anterior lobe tissue also was removed, but a sufficient amount remained to maintain normal body growth and sex cycles. Six of these animals were mated and bore litters. Birth occurred at the usual time. The evidence thus shows that in rats a secretion of the posterior hypophysis is unnecessary either for the genesis or for the maintenance of the uterine contractions at parturition.

Liver, Lactic Acid and Acid-Base Equilibrium.—McClure reports the results of a study of the function of the liver in the control of the acid-base equilibrium. The assumption that absorption and reconversion of lactic acid by the liver to glycogen or sugar is accompanied by a liberation of free base and a reduction in hydrogen ion concentration was tested by p_H determinations of portal, arterial and hepatic venous blood. The assumption that the magnitude of this reconversion of blood lactic acid and liberation of free base would vary with the degree of impairment of oxidation and concentration of blood lactic acid was tested by similar p_H determinations following intravenous injection of sodium cyanide. Under the basal conditions obtaining the hydrogen ion concentration was lowest in the hepatic venous blood, highest in the portal blood and midway between in the arterial blood. Intravenous injection of sodium cyanide produced variable effects on the hydrogen ion concentration of the arterial blood, depending on the accompanying changes in pulmonary ventilation. The greater the augmentation of ventilation, the greater was the initial decrease in hydrogen ion concentration. Intravenous injection of sodium cyanide produced a large increase in the hydrogen ion concentration of the portal blood and a relatively small increase in the hepatic venous blood. The resulting increase in the difference of hydrogen ion concentration between portal and hepatic venous blood occurred with and without an accompanying decrease in hydrogen ion concentration of the arterial blood. The fact that hepatic venous blood showed a lower hydrogen ion concentration than the portal or arterial blood during "normal basal conditions" suggested that the liver is continually removing lactic acid from the blood and liberating free base. The fact that the difference in hydrogen ion concentration between portal and hepatic venous blood increased after intravenous injection suggested that this process is augmented during impaired oxidation. The liver thus provides a self-corrective mechanism against acidosis arising from impaired oxidation. The resupply of sugar to the blood and tissues resulting from the reconversion of lactic acid is considered as an accessory mechanism supporting the failing oxidations. Assuming a reconversion of 28 mg. of lactic acid per hundred cubic centimeters of blood, enough base is liberated to lower the hydrogen ion concentration of the portal blood about 0.09 p_H. This approximates the difference in p_H of portal and hepatic venous blood of the "normal basal condition" found in these experiments. Assuming that the flow of blood through the liver equals 20, 30 or 40 per cent of the total cardiac output, it is computed that the continuous effect of the liver on the hydrogen ion concentration of the total mixed blood should be approximately a reduction of 0.018, 0.027 or 0.036 p_H with each complete circulation of the blood.

Constant Intravenous Epinephrine Injection in Dogs.—Samson and Jacobs administered epinephrine intravenously to unanesthetized dogs at constant rates over relatively long periods of time (up to thirteen days). Continuous epinephrine administration resulted in a transient hyperglycemia and glycosuria, both of which disappeared in twenty-four hours. The normal glycemia persisted with continued injection, even when the rate of administration was doubled, and there was no further glycosuria. The cessation of epinephrine administration while the blood sugar values were within normal limits led to an abrupt hypoglycemia with a slower return of the blood sugar to normal values. With further injection a second hyperglycemia and glycosuria occurred, although not as marked as the first. Continuous epinephrine administration increased the urinary output in every case. Continuous epinephrine injection did not affect the urinary nitrogen excretion as measured by twenty-four hour periods. Comment is made on the possibility of interpreting the glycemic curves.

Blood Changes in Hypothyroidism and Hyperthyroidism.—According to Kunde and her associates, the anemia of hypothyroidism (rabbit) is characterized by a greater than normal diameter of the erythrocytes, a color index greater than 1, a normal hydrochloric acid content of the gastric contents, and a bone marrow which does not simulate either grossly or microscopically the bone marrow of pernicious anemia. The cholesterol content of the blood, accompanying the anemia of hypothyroidism, is greater than normal. Experimental hyperthyroidism in the rabbit causes an initial polycythemia and a corresponding increase in hemoglobin. Prolonged hyperthyroidism results in an anemia characterized by a color index less than 1 and a decreased diameter of the red blood cell. The total blood volume in experimental hypothyroidism and hyperthyroidism (dye method) does not change beyond the limits of normal variation. In the normal adult rabbit, desiccated thyroids in dosages of from 250 to 450 mg. daily per rabbit does not cause an appreciable increase in the percentage of reticulocytes. In the cretin a reticulocyte response varying from 4 to 10 per cent occurs as the result of thyroid feeding.

Annals of Surgery, Philadelphia

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Congenital Cysts and Fistulas of Neck. H. W. Meyer, New York. —p. 1.

*Management of Skull Fracture Involving Frontal Sinus. E. S. Gurdjian and H. K. Shawan, Detroit.—p. 27.

Osteomyelitis of Jaws in Nurslings and Infants. A. O. Wilensky, New York.—p. 33.

*Roentgen Visualization of Parotid Gland by Means of Lipiodol Injection. A. J. Barsky and H. Silberman, New York.—p. 46.

*Primary Tuberculosis of Parotid Gland. H. Berman and M. J. Fein, Brooklyn.—p. 52.

*Metastatic Epidural Abscess of Spinal Cord: Recovery After Operation. W. M. Craig, Rochester, Minn., and J. B. Doyle, Los Angeles.—p. 58.

*Pulmonary Embolism and Infarction: Analysis of Sixty-Four Cases. K. Hosoi, Albany, N. Y.—p. 67.

Nerve Suture and Muscle Repair: Primary Suture of Ulnar Nerve and Secondary Reconstruction of Extensor Tendons of Forearm. E. Horgan, Washington, D. C.—p. 93.

Antivirus Treatment of Malignant Edema Infections. A. N. E. Merten and E. J. Oesterlin, Milwaukee.—p. 101.

*Closing Bronchial Stump in Pulmonary Surgery. W. E. Adams and Huberta M. Livingstone, Chicago.—p. 106.

*Traumatic Rupture of Congenital Hydronephrotic Kidney. J. A. Lazarus, New York.—p. 117.

*Cyst of Pancreas Associated with Ectopic Splenic Island. C. A. Traver, Albany, N. Y.—p. 127.

Skull Fracture Involving Frontal Sinus.—Gurdjian and Shawan report that the incidence of frontal sinus fractures in a series of more than 2,600 cases of skull fracture was around 5 per cent. The majority of sinus fracture cases are asymptomatic. The patients should be confined to bed for a period of eight to ten days at least. They should not be permitted to blow the nose. Intranasal douches are contraindicated. The patient should be watched for infection in the sinus and suppuration within the cranial cavity. Compound fractures in this situation should be operated on as soon as the condition of the patient permits. The posterior wall of the sinus should be inspected. The great majority of frontal sinus fractures should be left alone. The results with conservative treatment are gratifying. The incidence of meningitis in the authors' series was 0.8 per cent.

Roentgen Visualization of Parotid Gland.—Barsky and Silberman emphasize the fact that roentgen examination of the parotid gland after injection of iodized poppy-seed oil 40 per cent is a simple, safe procedure when properly performed. In their series no injurious effects have resulted from the injection. Injection of the gland with iodized poppy-seed oil should never be made in the presence of active infection. At present, this method is the only accurate way of determining the exact condition of the gland and its deviations from the normal when diseased. In cases of parotid fistula, actual visualization of the ducts is of the greatest aid in determining the course of treatment.

Primary Tuberculosis of Parotid Gland.—According to Berman and Fein, tuberculosis of the parotid gland is rare and is often mistaken for malignant tumor or syphilis. Two distinct types are usually found: The first is the chronic or fibroid type, which is encapsulated and may not produce symptoms for months or even years; the second type is acute inflammatory, which is diffuse and runs its course in a few days or a week. Tubercle bacilli gain entrance into the parotid gland by one of three ways, canalicular, hematogenous or lymphatic, with the first being the most common. Symptoms consist of swelling of the gland, as either a circumscribed or fluctuating tumor, or more diffuse with an occasional soft spot. The second is usually adherent, red, tense, shiny and edematous. Pain is a late sign and the lymph nodes of the neck are not involved. Diagnosis is likely to be difficult unless it is confirmed by biopsy. Prognosis is good, as the condition is purely local. The treatment is purely operative, and even when facial paralysis takes place from injury to the facial nerve, either by disease or by operative trauma, there is recovery in most instances.

Abscess of Spinal Cord.—In a review of fourteen cases of metastatic epidural abscess of which the histories are recorded in the literature, Craig and Doyle discovered only one in which the patient had recovered. They report an additional case in which the condition was diagnosed, the patient operated on, and recovery took place.

Pulmonary Embolism and Infarction.—Hosoi's study is based on sixty-four verified cases of pulmonary embolism with or without infarction. They consist of twenty-five postoperative, three posttraumatic, and thirty-six medical cases of embolism. This gives a necropsy incidence for embolism of 7.9 per cent, a mortality incidence of 2.1 per cent, and a morbidity incidence of 0.102 per cent. Sex has probably no etiologic significance. The age incidence of embolic cases suddenly increases from 40 years onward. The obese patients with embolism were all in this age liability group. Embolism occurred in 0.09 per cent of the patients after general surgery and in 0.08 per cent after gynecologic surgery. Sixty-four per cent of the cases occurred in the first and second weeks postoperatively. The duration of symptoms from onset of pulmonary embolism to death varied from sudden to ten days, 80 per cent dying by the third day. Sixty-eight per cent of the operations were in the lower part of the abdomen. On the other hand, in medical embolism, the duration of symptoms was longer (as long as twenty-seven days) owing to the greater frequency of smaller emboli occurring sometimes in showers. Furthermore, patients with medical embolism were not so severely affected, since only about one third of them died within the first three days. Forty-two per cent of the postoperative emboli lodged in the lower lobes, more often on the right in the ratio of almost 2:1, and 42 per cent in the main pulmonary artery or in one or both of its two branches, the right being favored. Owing to the frequency of the embolism being less massive in medical cases, the emboli were able to reach the smaller branches of the pulmonary artery; in 64 per cent of the cases the lower lobes were involved, but, contrary to postoperative infarction, medical infarction occurred more often in the left lower lobe than in the right lower. There was manifest infection in only 32 per cent of the postoperative cases and in 50 per cent of the medical cases. Infarction after embolism is liable to occur when there is an added circulatory congestive disturbance. The pathologic changes in the heart presented a varied picture of hypertrophy, cardiosclerosis and endocarditis. The hearts in the medical cases were uniformly larger and 42 per cent of them showed severe lesions of hypertrophy and dilatation (decompensation), coronary thrombosis with infarction, vegetative endocarditis, and pancarditis. Infarction occurred almost twice as frequently after medical embolism as after postoperative embolism.

Closing Bronchial Stump in Pulmonary Surgery.—Adams and Livingstone describe experiments on dogs in which they demonstrated that complete stenosis of a bronchus one-half inch in diameter was the usual occurrence in two weeks following the application of a 35 per cent solution of silver nitrate. Stenosis of the bronchial lumen was brought about by collapse of its wall and by filling in of the lumen with the injured elements of the wall and granulations, with subsequent fibrous tissue formation. Massive atelectasis accompanied complete stenosis of the main bronchus of a pulmonary lobe. No atelectasis was present when all the main air passages to the lobe were not completely obstructed. The entire wall of a bronchus became necrotic following cauterization with a 75 per cent solution of silver nitrate. Parts of the wall remained viable when solutions of a lower percentage were used. The cartilages and elastic tissue were found to be the most resistant to destruction by the solutions employed. Following necrosis of the entire bronchial wall, only the epithelium was found to regenerate. Regeneration of the epithelium was rapid, not infrequently giving rise to polypus and inclusion cyst formation. Fibroblastic proliferation was pronounced, especially following 35 and 50 per cent solutions of the chemical.

Rupture of Hydronephrotic Kidney.—Lazarus states that the incidence of rupture of congenital hydronephrotic kidneys is small. In children, kidneys that rupture as a result of mild traumas are usually hydronephrotic. So-called spontaneous rupture of kidneys may be due to mild forms of trauma easily overlooked by patients. They are rare, as attested by a paucity of cases reported in the literature. Hematuria is not a cardinal symptom in rupture of the kidney. The presence of ecchymotic areas over the skin of the loin, thigh, penis or perineum may be suggestive of a renal injury. Exploratory laparotomy is indicated in all cases in which doubt exists regarding the presence of an intra-abdominal lesion associated with the renal injury. The kidney should be exposed and explored through a second incision in the loin. Retroperitoneal extravasations are best drained through the lumbar route rather than transperitoneally. Conservative surgery cannot be employed in cases of ruptured congenital hydronephrotic kidneys, nephrectomy being the procedure of choice.

Cyst of Pancreas.—Traver reports a case of cyst of the pancreas in a man, aged 61, who died of pulmonary embolism twenty-one days after operation. The cyst had ruptured, the contents causing widespread fat necrosis. The lining of the cyst suggested an origin from pancreatic ducts, with possibly a congenital anomaly of the ducts as a basis for the condition. This hypothesis is supported by the presence of another anomaly, splenic tissue within the pancreas. Other theories of etiology are discussed. Treatment consists of early operation with prolonged drainage. Complications are frequent.

Archives of Neurology and Psychiatry, Chicago

27: 1-247 (Jan.) 1932

*Progressive Pallidal Degeneration: New Clinicopathologic Syndrome. N. W. Winkelman, Philadelphia.—p 1.
*Certain Functions of Roots and Ganglions of Cranial Sensory Nerves W. E. Dandy, Baltimore.—p. 22.
Intracerebral Vascular Nerves. W. Penfield, Montreal, Canada —p. 30.
*Osteitis Fibrosa, Cystica of Skull, Associated with Hemianopia and Psychotic Symptoms. H. D. Palmer, R. Harrow, Philadelphia, and L. A. Schwartz, Detroit.—p. 45.
**Peripheral Nerves: Anatomic and Pathologic Considerations.* G. B. Hassin, Chicago.—p. 58.
*Syndrome of Polyneuritis with Facial Diplegia. E. W. Taylor and C. A. McDonald, Boston.—p. 79.
Neurosomatic Deterioration in Epilepsy: Clinicopathologic Contribution to the Concept, with Report of Two Cases. M. B. Hodskins and P. I. Yakovlev, Palmer, Mass —p. 113.
*Epileptic Convulsions of Dementia Paralytica: Their Relation to Sclerosis of Cornu Ammonis. H H. Merritt, Munich, Germany.—p. 138.
Distribution of Calcium Between Blood and Cerebrospinal Fluid in Sleep Induced by Diallyl-Barbituric Acid: Experimental Study. S. Katzenelbogen, Baltimore.—p. 154.
Ephedrine Circulatory and Glycemic Reactions in the Psychoses. K. E. Appel and *H. D. Palmer*, Philadelphia.—p. 159.

Progressive Pallidal Degeneration.—Winkelman describes two cases with an unusual syndrome occurring in brothers, in one of whom a pathologic study of the nervous system was made. For this syndrome he suggests the name progressive pallidal degeneration. It consists of a progressive rigidity, which begins in the lower limbs and eventually involves the entire body. In the author's patients, retinitis pigmentosa was present as evidence of a familial condition. Pathologically, the same sort of involvement was present in the pallidum and in the reticular portion of the substantia nigra. One case in which a pathologic study was made further advances the idea that the pallidum and reticular portion of the substantia nigra are phylogenetically and ontogenetically similar. The name "pallidal system" is suggested for these two structures. The author believes that rigidity without tremor may be the only clinical manifestation of involvement of the pallidal system.

Cranial Sensory Nerves.—Dandy believes that paroxysmal pain of the type observed in the trigeminal and glossopharyngeal nerves is just as positive evidence of origin in a higher sensory level as a clonic convulsion is evidence of origin in a higher motor level. And just as one cannot produce a clonic convulsion by a lesion on or stimulation of a peripheral motor nerve, so one cannot produce a paroxysmal pain by a lesion of a peripheral sensory nerve. A chance observation on a sensory cranial nerve appears to lend support to, and perhaps to amplify, these conclusions. During an operation on a hypophyseal tumor, the right optic nerve was accidentally divided through somewhat more than half of its transverse extent when the line of vision was momentarily obscured by the handle of a curet. The cut in the nerve was oblique and extended anteriorly and outwardly for a distance of about 1 cm. from a point on the inner side of the nerve, about 2 mm. anterior to the chiasm. Anteriorly, the cut extended somewhat beyond the midline of the nerve. Prior to operation, the patient had shown a bitemporal hemianopia for form and color in each eye. The visual acuity was slightly less on the side of the operation (right). Forty-eight hours after the operation the fields of both eyes had in large part returned, and before the patient left the hospital, two weeks later, repeated perimetric tests by different examiners gave normal fields for form and color in both eyes, and the visual acuity was normal. There was no scotoma. Not the slightest defect of vision could be detected in the affected eye at any time. To test the results as far as possible, an experiment was made on a dog as follows: The outer half of the left and the inner half of the right optic nerves were sectioned immediately in front of the chiasm. Several days after the operation, the dog was tested by rapid movement through a narrow irregular path. Although a right homonymous hemianopia would have been the expected result of the experiment, the dog rapidly negotiated the path through the laterally placed impediments on either side with perfect ease. Although the animal was tested repeatedly, there was no tendency to run into objects on the side on which blindness might have been expected. Although the result in this canine experiment apparently harmonizes with the negative human result, there still remains a doubt, because the dog may be able to compensate for loss of vision by rapidly shifting the eyes and neck. When a rough test of the fields of vision was made by thrusting an object toward the eye, vision seemed to be unaffected; but in this respect again the test is too crude to be dependable. As a matter of fact, the negative results of hemisection of the optic nerve are almost precisely similar to those attending hemisection of the trigeminal nerve. The author realizes that these results, if correct, are difficult if not impossible to harmonize with an inflexible neuron doctrine.

Osteitis Fibrosa Cystica of Skull.—Palmer and his associates report a case of localized osteitis fibrosa cystica resulting from an injury to the skull in infancy and giving rise to neurologic symptoms twelve years after the occurrence of the trauma. The etiologic rôle of the trauma is significant since recent literature has tended to designate the generalized form as dependent on parathyroid hyperplasia and the local type as determined purely by trauma. Yet it is obviously rare that bone injury alone leads to the formation of cystic areas of osteitis. In the light of recently established relationship between endocrine imbalance and the malacias, it may be conjectured that there are conditioning endocrine factors in patients who develop cystic bone lesions following a trauma, resulting in a disordered metabolism and predisposing to anomalous repair with typical cyst formation. Focal compression of the right occipital pole by the intrusion of the inner wall of the bone cyst produced a lesion of the calcarine cortex, evidenced by the incomplete left homonymous hemianopia. Irritation of the visual cortex in this area occasioned visual hallucinatory phenomena. The similarity between the picture presented by the authors' patient and that of patients with tumors of the occipital lobe is worthy of emphasis. The differential diagnosis rested largely on the roentgenologic observations.

Peripheral Nerves.—According to Hassin, the structure of a peripheral nerve fiber is more complex than that of a central fiber. The Schwann cells and the Schwann membrane form one structure. The Schwann membrane separates the parenchyma from the surrounding mesodermal tissues. The Schwann cells undergo irreparable changes in wallerian degeneration and are, like the damaged parenchyma, removed from the place of the lesion. As such cells cease to exist, new nerve fibers cannot be produced from them, as has been maintained by the antineuronists. The Schwann cells seen in a peripheral sector evidently come from the central stump and accompany the outgrowing new fibers. The endoneural cells growing in both central and peripheral stumps merge to form cell cordons, which constitute the proper conducting pathways for the outgrowing nerve fibers. Such cordons not only assure proper pathways for the growing nerve fibers but assist in their metabolism by removing the products of the latter. The absence of such syncytial structures in the brain is probably the cause of the failure of central fibers to regenerate.

Polyneuritis with Facial Diplegia.—Taylor and McDonald report sixteen cases of polyneuritis, fourteen with facial diplegia, one without definite facial paresis and one of double facial involvement and paresis of other cranial nerves without involvement of the extremities. From a study of these and other cases reported, it is evident that the syndrome is of relatively frequent occurrence, that it is sporadic and never appears in epidemic form, and that it is not confined to adult life. The etiology has not been definitely determined. The signs of infection are slight and often entirely absent. A febrile onset is inconstant. No fixed latency period, therefore, can be determined. The symptomatology, apart from the somewhat arbitrary coincidence of facial diplegia and general peripheral neuritis or neuronitis, is varied. No constant relationship exists between the appearance of the facial paresis and the more general signs of neuritis. The duration of the disease is from one or two weeks to several months. Death, from respiratory involvement, is rare. Complete recovery is the usual outcome. Occasionally, full facial control does not return. Pathologic changes are of the nature of a diffuse inflammation, involving especially peripheral neurons, the cord and brain stem to a lesser extent and the cortex slightly if at all. The cerebrospinal fluid varies from normal to a condition characterized by a pronounced increase in total protein with slight or often no increase in the number of cells (albuminocellular dissociation—Guillain).

Convulsions of Dementia Paralytica.—Merritt presents evidence showing that sclerosis of the cornu ammonis is of vascular origin. He reports thirty cases of dementia paralytica with sclerosis of the cornu ammonis; the incidence of epileptiform phenomena was found to be 90 per cent. No evidence of an organic vascular occlusion was found in these cases, and there was no apparent causal relation between the sclerosis and the inflammatory reaction around blood vessels.

Canadian Medical Association Journal, Montreal

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Some Aspects of Rickets. E. A. Park, Baltimore.—p. 3.
Spondylolisthesis. B. Mooney, Edmonton.—p. 16.
*Coronary Thrombosis: Clinical and Pathologic Study. J. C. Meakins and W. W. Eakin, Montreal.—p. 18.
*Angina Pectoris Occurring in Course of Certain Anemias. N. B. Gwyn, Toronto.—p. 26.
*Studies in Cholesterol Metabolism: I. Physiologic Variations in Blood Cholesterol. J. M. McEachern and C. R. Gilmour, Winnipeg.—p. 30.
What is New in Tuberculosis? D. A. Stewart, Ninette.—p. 34.
Scoliopathexis. E. L. Pope, Edmonton.—p. 40.
*Leukorrhea. L. C. Conn, Edmonton.—p. 48.
*Acute Appendicitis: Study of Four Hundred and One Cases. J. McKenty, Winnipeg.—p. 50.
A Five-Year Review of Pulmonary Complications Following Operation. C. C. Stewart, Montreal.—p. 55.
Mental Troubles of Fifth and Sixth Decades. E. C. Menzies, Verdun. —p. 59.
Ultraviolet Radiation in Its General Application to Disease. W. K. Russell, London, England.—p. 62.
Notes on a Small Epidemic of Infantile Paralysis Occurring in Country Practice. C. B. Cameron, Petitie Riviere, N. S.—p. 65.

Coronary Thrombosis.—Meakins and Eakin state that the treatment of coronary thrombosis is the same as that of thrombosis elsewhere. An essential feature is the allowance of time not only that adaptation to the injury may be acquired but also that anastomosis may take place. Therefore, rest is of the greatest importance. This is rather difficult at times to insist on, as the acute symptoms of coronary occlusion comparatively rapidly disappear, and the patient cannot understand why a prolonged period of absolute bed-rest is insisted on. A firm attitude and judicious instillation of fear is therefore strongly indicated. The use of digitalis is at first to be recommended but seldom. As time passes and symptoms of circulatory failure develop, it is then indicated. In the rare case of ventricular tachycardia, quinidine would be indicated; otherwise medication, apart from the use of morphine during the acute attack, would logically have but little value. The most difficult period of the treatment comes when the patient is allowed more liberty and activity. It is impossible to lay down hard and fast rules governing this. It is a question of individual cautious trial and experiment. The easy production of dyspnea and fatigue are contraindications for liberty. If the patient is intelligent, much can be done with his cooperation. When signs of congestive circulatory failure develop, the cases must be handled in exactly the same manner as when they are due to other causes. The occurrence of repeated thrombosis must always be borne in mind and must govern one not only in the prognosis but also in the treatment.

Angina Pectoris in Anemia.—According to Gwyn, the results of treatment in cases of "anemic angina" would seem to indicate that the anemia plays at least an important part in the production of the cardiac symptoms. Transfusion has apparently cured several patients almost at once, and it would seem that by the building up of the blood condition a severe angina may disappear. Whether one should conclude from this that one can close one's eyes to the possibility of coexisting coronary disease is of course another question. By relieving the anemia one has, of course, lessened considerably the degree of anoxemia, and if the anemia has been permanently done away with, a heart might well carry on even with partially obstructed coronaries. Any aid that might be expected from the development of a collateral circulation has probably been discounted by the time the patient appears before the physician.

Cholesterol Metabolism.—McEachern and Gilmour find wide variations in the five-hour blood cholesterol curve in twenty-eight normal fasting persons. Such variations render single or haphazard studies of blood cholesterol of doubtful value. There was no evidence of cholesterol absorption or effect on the blood level in twelve normal persons given large doses of this substance.

Leukorrhea.—Conn emphasizes the fact that up to the present not much attention has been paid to the monilia or yeast fungus as a cause of leukorrhea. The yeast fungus may be present without causing any symptoms. As a rule it does not cause much discharge, but the reaction of the vagina is usually highly acid. This infection may also be present in pregnant women. Parous women are more often infected than nulliparas. The symptoms caused are itching, burning and smarting of the lower vulva and vagina. Digital examination, speculum examination, and sexual intercourse may be painful. The organism may be found by the ordinary examination under the microscope, or one may stain it. It may also be grown in culture. The treatment recommended by the author is 1 per cent gentian violet in aqueous solution. Alkaline douches are also advised.

Acute Appendicitis.—McKenty presents a study of 401 consecutive cases of acute appendicitis showing satisfactory results in the uncomplicated cases and in the cases with localized peritonitis and abscesses, and unsatisfactory results in 57 cases of diffuse peritonitis. A review of reports published since 1920, covering 17,916 cases, shows that among British and American surgeons the average mortality is 6 per cent and that 60 per cent of the total deaths are due to diffuse peritonitis. Immediate operation in diffuse peritonitis of appendical origin has a mortality of 31.9 per cent. The author believes that whether the results under the Ochsner-Sherren plan of treatment are better or worse cannot be ascertained from a study of the literature. The followers of this plan have not published statistics which would enable the profession to judge of its merits.

Journal of Clinical Investigation, Baltimore

11: 1-248 (Jan.) 1932

*Studies on Mode of Action of Irradiated Ergosterol: I. Its Effect on Calcium, Phosphorus and Nitrogen Metabolism of Normal Individuals. W. Bauer, A. Marble and Dorothy Claflin, Boston.—p. 1.
*Id.: II. Its Effect on Calcium and Phosphorus Metabolism of Individuals with Calcium Deficiency Diseases. W. Bauer and A. Marble, Boston.—p. 21.
*Id.: III. Effect of Irradiated Ergosterol Administration on Formation of Bone Trabeculae. W. Bauer and A. Marble, Boston.—p. 37.
Id.: IV. In Hypoparathyroidism. W. Bauer, A. Marble and Dorothy Claflin, Boston.—p. 47.
Movement of Fluid Through Human Capillary Wall in Relation to Venous Pressure and to Colloid Osmotic Pressure of Blood. A. Krogh, E. M. Landis and A. H. Turner, Copenhagen, Denmark.—p. 63.
Plasma Proteins in Relation to Blood Hydration: VII. Note on Proteins in Acute Nephritis. J. P. Peters, F. S. Bruckman, Anna J. Eisenman, Pauline M. Hald and A. M. Wakeman, New Haven, Conn. —p. 97.
Id.: VIII. Serum Proteins in Heart Disease. S. A. Payne and J. P. Peters, New Haven, Conn.—p. 103.
Id.: IX. Serum Proteins in Terminal Stages of Renal Disease. J. P. Peters, F. S. Bruckman, Anna J. Eisenman, Pauline M. Hald and A. M. Wakeman, New Haven, Conn.—p. 113.
Variations in Serum Calcium, Protein and Inorganic Phosphorus in Early and Late Pregnancy, During Parturition and Puerperium, and in Nonpregnant Women. W. F. Oberst and E. D. Plass, Iowa City. —p. 123.
Effect of Liver and Commercial Liver Extract on Body Weight, Red Blood Cells, and Reticulocytes of Normal Rats. Janet M. Vaughan and Gulli Lindh Muller, Boston.—p. 129.

Studies in Congestive Heart Failure: XV. Reflex Versus Chemical Factors in Production of Rapid Breathing. T. R. Harrison, J. A. Calhoun, G. E. Cullen, W. E. Wilkins and C. Pilcher, Nashville, Tenn.—p. 133.
*Gastric Acidity in Normal Individuals. J. Lerman, F. D. Pierce and A. J. Brogan, Boston.—p. 155.
*Gastric Secretion in Exophthalmic Goiter and Myxedema. J. Lerman and J. H. Means, Boston.—p. 167.
Effects of Environmental Temperature, Anesthesia and Lumbar Sympathetic Ganglionectomy on Temperatures of Extremities of Animals. C. Sheard, E. H. Rynearson and W. M. Craig, Rochester, Minn.—p. 183.
Observations on Formation of Wheals: IV. Influence of Calcium Concentrations on Histamine Wheals. W. K. Weaver, H. L. Alexander and F. S. McConnell, St. Louis.—p. 195.
Id.: V. Effects of Variation of Carbon Dioxide Combining Power of Blood on Histamine Wheals. F. S. McConnell, W. K. Weaver and H. L. Alexander, St. Louis.—p. 205.
Studies of Calcium and Phosphorus Metabolism: VI. Hypoparathyroidism and Chronic Steatorrhea with Tetany with Especial Consideration of Therapeutic Effect of Thyroid. J. C. Aub, F Albright, W. Bauer and Elsie Rossmeisl, Boston.—p. 211.
Id.: XV. In Various Metabolic and Bone Disease. J. C. Aub and R. F. Farquharson, Boston.—p. 235.

Irradiated Ergosterol: I.—Bauer and his associates describe experiments in which they noted that the administration of viosterol in small doses to normal individuals produced no constant changes in either the calcium or the phosphorus metabolism. The administration of viosterol in daily doses of 30 mg. to normal individuals resulted in an immediate increase of the fecal calcium and phosphorus excretion. The urinary calcium and urinary phosphorus were decreased. Following this there occurred a decreased fecal calcium and phosphorus excretion and an increase in the urinary calcium and phophorus excretion. The calcium and phosphorus balances were only slightly affected. Following the cessation of viosterol administration, the fecal calcium and phosphorus promptly rose and the urinary calcium and phosphorus fell slightly. The serum calcium and phosphorus of normal individuals was only slightly affected by viosterol therapy. The nitrogen excretion was unaffected by viosterol administration. No constant changes in the blood plasma cholesterol were noted during the administration of viosterol. No untoward symptoms resulted from the administration of as much as 30 mg. of viosterol a day.

Irradiated Ergosterol: II.—Bauer and Marble report that a case of osteoporosis was greatly improved by the administration of viosterol in conjunction with a high calcium diet. A case of osteomalacia with tetany secondary to faulty absorption showed immediate and lasting benefit from viosterol. Viosterol acts as a specific drug in this type of calcium phosphate disorder. No untoward symptoms were observed in either case as the result of such therapy. The action of viosterol is the same in normal individuals as in individuals with calcium deficiency diseases; namely, to increase absorption of calcium and phosphorus from the gastro-intestinal tract. If there exists a calcium phosphate deficiency of the serum as well as the bones, the additional calcium and phosphorus absorbed is retained in order to establish a normal relationship of calcium and phosphorus in the serum and thus allow the deposition of calcium phosphate in the bones. In calcium deficiency diseases in which there is a calcium phosphate deficiency of the bones only, the consequent retention is not so marked, whereas in normal individuals little or no retention takes place because the serum and bones are both normal in respect to calcium phosphate. The dose of viosterol necessary to produce such changes in the calcium and phosphorus metabolism of individuals with calcium deficiency diseases is much smaller than the amount required to produce changes in the calcium and phosphorus metabolism of normal individuals.

Irradiated Ergosterol: III.—The administration by Bauer and Marble of a high calcium diet to cats with calcium phosphate deficiency of the bones resulted in an increase in the number of bone trabeculae. This increase in the number of bone trabeculae was greater when, in addition to a high calcium diet, viosterol was given.

Normal Gastric Acidity.—In a series of gastric analyses of 200 normal patients, using histamine and alcohol as the gastric secretory stimulants, Lerman and his associates found that the average free acidity was 40.4 cc. of tenth normal acid and the average total acidity 50.1 cc. There was no correlation between age and gastric acidity. The incidence of anacidity was 13 per cent. Up to the age of 65 there was a definite correlation between age and the incidence of anacidity. Beyond this age the number of cases with anacidity dropped off and the number with hyperacidity increased. The average gastric acidity was higher in the male than in the female. Consequently females more frequently show anacidity and hypo-acidity and less often hyperacidity. The red blood cell count and hemoglobin content tended to vary directly with the level of gastric acidity. Consequently the greater the tendency to achlorhydria, the lower the red blood cell count and hemoglobin content; the greater the tendency to hyperchlorhydria, the higher the red blood cell count and hemoglobin content. From the data available in forty-one cases it seemed that there was some degree of correlation between the incidence of gastric anacidity and level of basal metabolism.

Gastric Secretion in Thyroid Disease.—Lerman and Means state that in patients with exophthalmic goiter and myxedema there is a definite lowering of the gastric acidity to about half its normal value. The incidence of achlorhydria in exophthalmic goiter is 38 per cent and in myxedema is 53 per cent. Corrected for the age distribution of a normal group, the incidence is 46 per cent and 75 per cent, respectively. The frequency of achlorhydria is out of proportion to the depression in the average acidities and suggests that other factors are also important in its causation. There is perhaps a threshold of gastric secretion, and if the secretion is depressed beyond it, anacidity results. In exophthalmic goiter there is no definite correlation between gastric acidity and such factors as age, red blood cell count, hemoglobin and level of basal metabolism. On the other hand, there is a high degree of correlation between the incidence of achlorhydria and age and basal metabolic rate and a probable inverse correlation between the incidence of achlorhydria and red blood cell count and hemoglobin. There is also a higher incidence of achlorhydria and hyperchlorhydria among males than among females. In myxedema there is an unusual tendency to anemia among patients with achlorhydria. There is indirect evidence that achlorhydria may persist in some cases at least after the primary condition has been cured. The knowledge of the gastric secretion in an individual case may be of practical importance in prevention of the development of anemia.

Kansas Medical Society Journal, Topeka

33: 1-38 (Jan.) 1932

Painful Points and Problems. E. K. Lawrence, Hiawatha.—p. 1.
Treatment of Postoperative Abdominal Distention. T. G. Orr, Kansas City —p. 3.
Treatment of Stealing in Children. R. M. Fellows, Topeka.—p. 6.
Jaundice. E. S. Edgerton, Wichita.—p. 8.
Fatal Thrombosis Following Hypodermoclysis. R. T. Gants, Kansas City.—p 13.

Med. Bull. of Vet. Adm., Washington, D. C.

8: 1-92 (Jan.) 1932

Study of Manic-Depressive Psychosis in Ex-Service Men. P. B. Matr and O. C. Willhite.—p. 1.
Treatment of Complication in Artificial Pneumothorax. H. T. Ivey —p. 20.
Bronchial Spirochetosis: Case. J. A. Burket.—p. 26.
Incidence of Syphilis in Five Thousand Negro Ex-Service Men. J. B. Garrett and L. B. Smith.—p. 38.
Relation of Sphenoid Sinus to Dysfunction of Pituitary Gland. S. Bockoven.—p. 43.
*Syringomyelia. O. P. Goodwin.—p. 45.
Diagnosis of Coexisting Emphysema and Pulmonary Tuberculosis. W. C. Nalty.—p. 50.
Necessity of Immediate and Persistent Treatment in Laryngeal Tuberculosis. F. X. Suraci.—p. 53.
Pellagra: Six Cases. H. B. Fralic.—p. 56.
*Tissue Specificity of Mycobacterium Tuberculosis. W. J. Byles.—p. 61.
Use of Concentrate of Cod Liver Oil in Gelatin Pearls. E. J. Brett. —p. 63.
Full Denture Impressions. F. E. Meyer.—p. 64.

Syringomyelia.—Goodwin reports a case of syringomyelia in which twelve years elapsed from the time of onset before symptoms developed that were definite enough to warrant the diagnosis. He believes that when there is a history of nervous manifestations over a period of five, ten or fifteen years the possibility of syringomyelia should always be considered. The dissociation of touch and pain is almost distinctive, but this phenomenon is also sometimes found in neuritis, hysteria and tabes. Various cord levels are apt to be affected, and, as a consequence, one may have various symptom complexes. Certain degenerative lesions may be present for a considerable time without being noticed, and relatively recent and sudden symptoms should not rule out the diagnosis.

Tissue Specificity of Mycobacterium Tuberculosis.—Byles describes a case of primary renal tuberculosis, confirmed by necropsy. A guinea-pig inoculated with urine from the patient developed tuberculous lesions only in the kidneys and at the inoculation point. Two guinea-pigs inoculated with material from a kidney of the first pig also showed lesions only in the kidneys and at the inoculation points. Cultures from a kidney of one of the pigs showed growth typical of Mycobacterium tuberculosis (hominis). A guinea-pig inoculated with a bacterial suspension from the cultures showed lesions only in the kidneys and at the inoculation point.

Missouri State Medical Assn. Journal, St. Louis

29: 1-50 (Jan.) 1932

Recent Additions to Armamentarium for Fracture Reduction and Retention. E. P. Heller, Kansas City.—p. 1.
Gastro-Intestinal Allergy. L. P. Gay, St. Louis.—p. 7.
One-Stage Versus Two-Stage Suprapubic Prostatectomy. D. K. Rose, St. Louis.—p. 10.
Trachoma in Missouri. C. E. Rice and J. E. Smith, Rolla.—p. 13.
White House Conference on Child Health and Protection: General Statement. B. Veeder, St. Louis.—p. 17.
Brief Abstract of Report of Committee on Growth and Development. T. C. Hempelmann, St. Louis.—p. 18.
Mental Growth and Development. P. E. Kubitschek, St. Louis.—p. 19.
Prenatal and Maternal Care. H. Ehrenfest, St. Louis.—p. 21.
Summary of Survey on Preventive Medical Service to Preschool Children. D. M. Cowgill, St. Louis.—p. 24.
Medical Social Service. Edith Baker, St. Louis.—p. 26.
Report of Subcommittee on Pediatric Nursing. Bertha Yenicek, St. Louis.—p. 28.

New England Journal of Medicine, Boston

206: 1-46 (Jan. 7) 1932

Human and Economic Problem of Chronic Arthritis. R. B. Osgood, Boston.—p. 1.
What Is Organized Medicine's Attitude Toward Public Health Administration? W. H. Ross, Brentwood, N. Y.—p. 6.
*Presence of a Distinct Insulin in Depancreatized Dogs After Pancreatectomy. G. H. Tuttle, South Acton, Mass.—p. 8.
Significance of Complement Fixation Test in Diagnosis of Gonorrhea. W. Frankman, Boston.—p. 11.
The General Practitioner on Witness Stand. C. F. Keeley, Claremont, N. H.—p. 12.
Diets in Pregnancy in Relation to Low Blood Serum Calcium Values at Lactation. H. T. French and C. E. Bolser, Hanover, N. H.—p. 14.
*Ulcer of Stomach and Duodenum. E. S. Judd, Rochester, Minn.—p. 17.

Insulin in Depancreatized Dogs.—Tuttle describes experiments in which he demonstrated that a considerable amount of dextrose oxidizes or is utilized anaerobically by the depancreatized dog. Since insulin is necessary for the oxidation of dextrose, extrapancreatic or cellular insulin must exist in the normal dog after total pancreatectomy. The amount of this insulin gradually increases under the stimulation of the high blood sugar as the experiment progresses. The reason this insulin can increase thus is that the dog was not naturally diabetic at the time of operation, so that his cellular insulin can be normally increased by carbohydrate stimulation. If he had been naturally diabetic, no such increase or one much less, in proportion to the severity of the diabetic state, would have resulted (because the mechanism for producing cellular insulin may also be deficient in many diabetic states). Muscular action uses up considerable amounts of blood sugar anaerobically without the need of the assistance of insulin; and consequently in diabetic cases in which there is a deficiency of insulin such exercise takes the place of a certain amount of insulin in keeping the blood sugar near normal.

Ulcer of Stomach and Duodenum.—Judd believes that the final word concerning gastric and duodenal ulcer has not yet been spoken. The multiplicity of hypotheses advanced to explain their origin indicates that many factors play a part, differing perhaps in each case. In the presence of conflicting views, regarding the origin of ulcer, different forms of treatment are justified only on the basis of experience. A sharp line must be drawn between gastric and duodenal ulcer. The problem of carcinoma enters into the consideration of gastric ulcer. No matter how small a percentage of gastric ulcers are malignant or will become malignant, this possibility adds to the seriousness of the disease. Carcinoma almost never occurs in the first portion of the duodenum, so that the question of malignancy need not enter into consideration in the treatment of these cases. Many duodenal ulcers heal permanently under medical treatment. Any one with a duodenal ulcer is entitled to a trial of this type of treatment and to continue with the regimen so long as it is helpful. It is not a good plan to operate when the lesion is bleeding. If the patient has had one hemorrhage only and is free from symptoms at the time of the examination, it is not necessary or advisable to operate immediately. If he has a recurrence of symptoms, an operation may be indicated. If it becomes necessary to operate, particularly because of repeated severe hemorrhages, it is imperative to remove the ulcer if it can be done thoroughly by local excision, removing part of the muscle of the pyloric sphincter. If this cannot be accomplished because of the local condition, it is advisable to resect the stomach with the ulcer if possible. The local operation of excision of ulcer, with the cap of the duodenum and a considerable part of the pyloric sphincter, completing the operation as a gastroduodenostomy, is the operation of choice in all cases of ulcer of the duodenum and in ulcers on the gastric side near the pylorus. The radical operation is preferable in cases of gastric ulcer, particularly if there is considerable associated gastritis. Gastro-enterostomy gives satisfactory results for obstructing ulcer in the duodenum of patients past middle age. There is sure to be complete relief of symptoms, with little probability of the formation of secondary ulcers. A person who has once had an ulcer must always be considered as having an ulcer potentiality. Although it is not necessary for him to hold too rigidly to dietary restrictions, he should be very cautious about his diet and activities at any suggestion of a return of his former symptoms. If he is willing to conform, there is no reason why he cannot be made comfortable and live a useful and active life; if he does not follow this plan, the recurring trouble is likely to be much more difficult to control than the original trouble.

New York State Journal of Medicine, New York

32: 1-60 (Jan. 1) 1932

Agranulocytic Angina: General Discussion of Disease and Treatment. B. J. Delatour, New York.—p. 1.
Effect of Roentgen Ray on White Blood Cells. W. H. Stewart and H. E. Illick, New York.—p. 9
Diagnosis of Coronary Occlusion. A. M. Wedd, Clifton Springs.—p. 11.
Study of Results Obtained by Use of Artificial Ultraviolet Radiation in Two Hundred Nontuberculous Cases. S. I. Muller, Long Island City.—p. 16.

Public Health Reports, Washington, D. C.

47: 1-74 (Jan. 1) 1932

Rates of Physical Impairments in Twenty-Eight Occupations, Based on Seventeen Thousand Two Hundred and Ninety-Four Medical Examinations. R. H. Britten and Jennie C. Goddard.—p. 1.
Sex Differences in Prevalence of Dental Caries: Based on Twelve Thousand Four Hundred and Thirty-Five Oral Examinations by Dental Personnel in Georgia, Illinois, Missouri and Hagerstown, Maryland. Amanda L. Stoughton and Verna Thornhill.—p. 26.

Radiology, St. Paul

18: 1-220 (Jan.) 1932

Lung Abscess. W. A. Hudson, Detroit.—p. 1.
Roentgen Ray in Diagnosis and Prognosis of Upper Urinary Tract Infection. H. W. Plaggemeyer and C. G. Weltman, Detroit.—p. 23.
Fractures and Incomplete Dislocations of Mandible or Maxilla. L. Rogers, C. T. Hall and J. H. Shackelford, Detroit.—p. 28.
Intravenous Urography. R. E. Cumming, Detroit.—p. 41.
Demonstration and Significance of Nephroptosis and Urinary Stasis. H. L. Morris, Detroit.—p. 56.
*Ear Complications in Acute Craniocerebral Injuries: *Study of Four* Hundred and Seventy-Six Cases. E. S. Gurdjian, Detroit.—p. 74.
*Gastric Tumors. M. F. Dwyer, Seattle.—p. 80.
Diverticulosis of Colon. F. M. Groedel, Bad Nauheim, Germany.—p. 88.
Tumors of Male Breast, Based on Study of *Thirty-One Cases*. *B.* F. Schreiner, Buffalo.—p. 90.
Concept of Dosage and Definition of r Unit (Roentgen Unit). R. Glocker, Stuttgart, Germany.—p. 93.
International Comparison of Roentgen-Ray Standards. L. S. Taylor, Washington, D. C.—p. 99.

Ear Complications in Acute Craniocerebral Injuries.—Gurdjian emphasizes the fact that aural bleeding in cases of craniocerebral injury is a serious complication. The treatment is conservative in cases both with bleeding and with cerebrospinal fluid discharge. The ear should be left alone if it has stopped bleeding. Unnecessary examination may cause the introduction of infection. In cases in which there is still some discharge, the external ear should be carefully cleansed, the wall of the external auditory canal painted with 4 per cent iodine solution, and a mastoid dressing applied either with no packing of the canal or with very loose packing. As long as the patient does not complain of earache and there are no unexplainable clinical manifestations, the less done to the patient, the better the results. A total of 476 cases of aural bleeding or cerebrospinal fluid leakage from the ear are reported by the author. The right ear was involved in 36.5 per cent of the total group, and the left ear, in 43.1 per cent; there was bilateral bleeding in 20.6 per cent of the cases. In the group examined by roentgen ray, positive observations in cases with unilateral bleeding were 93 per cent, and in cases with bilateral bleeding, 98 per cent. Otitis media was found in nine cases, meningitis in four, and mastoiditis in three. The mortality was 37.1 per cent with right-sided, 38.5 per cent with left-sided, and 67.3 per cent with bilateral discharge.

Gastric Tumors.—According to Dwyer, the roentgenologist seldom fails to diagnose a gastric cancer; yet, owing to the location of the growth and the failure to recognize early signs of the lesion, the majority of gastric cancers are far advanced at the time of diagnosis. A patient who gives a history of chronic dyspepsia and whose gastric secretions show the presence of free hydrochloric acid may have a cancer of the stomach. This patient is just as deserving of a detailed study to determine or to rule out cancer as is one who consults a physician on account of comparatively recent development of gastric symptoms. In the author's series of patients with gastric carcinoma 38 per cent gave a history of dyspepsia averaging ten years before the onset of symptoms characteristic of cancer. Seventy per cent of these patients had free hydrochloric acid in their gastric contents. The author believes that the value of careful palpation of the partially filled stomach during fluoroscopy cannot be emphasized too strongly.

Rhode Island Medical Journal, Providence

15: 1-18 (Jan.) 1932

Practical Value of Blood Chemistry, Especially in Nephritis. J. P. O'Hare, Boston.—p. 1.
Important Points in Practical Treatment of Diabetes. A. M. Burgess, Providence.—p. 4.
Industrial Radium Poisoning with Bony Changes: Case. R. Hammond, Providence.—p. 6.

Tennessee State Medical Assn. Journal, Nashville

25: 1-42 (Jan.) 1932

Reconstructive Measures in Urologic Surgery. R. A. Hennessey and A. D. Mason, Memphis.—p. 1.
Frankness in Medicine. C. S. McMurray, Nashville.—p. 12.
Bellyaching About Bellyache; or, What Abdominal Pain Should Mean to the Surgeon. R. A. Barr, Nashville.—p. 17.
Absorption Test in Sinus Disease and Allergy. J. H. Lipsey, Memphis.—p. 21.
Value of Roentgen Ray in Obstetrics. P. C. Schreier and J. R. Reinberger, Memphis.—p. 24.

Western J. Surg., Obst. and Gynecology, Portland, Ore.

40: 1-51 (Jan.) 1932

Early Diagnosis of Acute Intestinal Obstruction, with Comments on Pathology and Treatment: Report of Successful Decompression of Three Cases of Mechanical Bowel Obstruction by Nasal Catheter Suction Siphonage. O. H. Wangensteen, Minneapolis.—p. 1.
Primary and Secondary Repair of Cleft Lip. W. S. Kiskadden and E. F. Tholen, Los Angeles.—p. 18.
*Advisability of Early Operation for Duodenal Ulcer. D. C. Balfour, Rochester, Minn.—p. 28.
*Carcinoma of Stomach. B. B. Davis, Omaha.—p. 31.
When Should a Tuberculous Kidney Be Removed? V. C. Hunt, Los Angeles.—p. 40.

Operation for Duodenal Ulcer.—Balfour calls attention to the fact that the selection of cases of duodenal ulcer for early operation would be greatly simplified if it were possible to predict with any accuracy the course of the disease in the individual case. For example, if one could know that the best of repeated medical treatments, and dietary regimen, would fail to control the symptoms of duodenal ulcer, much time, money and suffering would be spared the patient by early operation. As yet there are no satisfactory criteria on which to base predictions in the uncomplicated case. In the complicated case, that is, when the severity of symptoms or the radiation of pain indicates that extraduodenal involvement has occurred, intestinal hemorrhage, or when motor impairment can be demonstrated, early operation is clearly the best course for the patient to pursue, unless it is definitely contraindicated. In the absence of such complications, there are certain conditions under which operation may properly be advised for early uncomplicated duodenal ulcer. There are two groups of cases of uncomplicated duodenal ulcer in which early operation holds definite advantages for the patient. The first of these is represented by the patient who, in spite of conscientious effort to carry out well directed treatment, fails completely to control the symptoms. These patients are usually young, and at the most important period of their careers, and elimination of the recurring disability at such a time would be greatly to their advantage. In the second group, the patient, because of his unwillingness or inability to carry out the necessary regimen, is subjected to the recurrences of attacks which are characteristic of the disease. If such attacks are prolonged and disabling, nothing is gained by delaying surgical treatment. These two groups comprise a considerable number of duodenal ulcers, and the author is convinced that carefully applied surgical measures constitute the best method of dealing with the disease at this stage.

Carcinoma of Stomach.—According to Davis, it is highly probable that in chronic atrophic gastritis has been discovered a cause of many of the insidious cases of cancer of the stomach which have usually been spoken of as "primary" cancer. Chronic gastric ulcers offer a basis for an undetermined proportion of gastric cancers, and recognition of this fact may result in earlier operation in these cases. Therefore both ulcer prevention and ulcer cure and gastritis prevention and gastritis cure are a part of cancer prevention and cancer cure. There is already enough known about carcinoma of the stomach to make possible the cure of a much larger proportion of persons with this disease than was formerly possible.

West Virginia Medical Journal, Charleston

28: 1-48 (Jan.) 1932

Osteomyelitis. R. U. Drinkard, Wheeling.—p. 1.
Infections of the Petrous Pyramid. C. H. Smith, New York.—p. 7.
Ophthalmoscope and General Practitioner. V. T. Churchman, Sr., Charleston.—p. 15.
Pneumonoconiosis: Partial Review of Literature. W. L. Cooke, Beckely.—p. 19.
Use of Calcium in Asthma. E. Podolsky, Brooklyn.—p. 23.
Type and Extent of Operation for Cancer. R. J. Behan, Pittsburgh.—p. 25.

Wisconsin Medical Journal, Madison

31: 1-67 (Jan.) 1932

*Acute Mastoiditis: Comparison of Operative and Roentgen-Ray Observations. H. B. Hitz, Milwaukee.—p. 15.
Clinical Aspects of Oxygen Want. R. M. Waters, Madison.—p. 20.
What I Think About Cancer. K. W. Doege, Marshfield.—p. 24.
Combined Roentgenologic and Clinical Differential Diagnosis of Benign and Malignant Lesions of Stomach. B. R. Kirklin and G. B. Eusterman, Rochester, Minn.—p. 28.
Eye Diseases from Nasal Causes. A. Bardes, Milwaukee.—p. 30.

Acute Mastoiditis.—Hitz emphasizes the fact that acute mastoiditis is always potentially a serious matter from its inception and should be promptly recognized and efficiently handled. A general physical survey should always be made including roentgen examination of temporal bones, frequent eyeground examinations, blood count, and urinalysis and, on the slightest suspicion of complication, blood cultures and spinal fluid examination. Operation when it has been decided on should be promptly done and completely executed. Half done measures are worse than useless. Secondary operations may be considered to be evidence of poor primary work and of poor judgment. They greatly add to the danger of life and prolong the period of recovery. Overlong preoperative observation also makes possible the subsequent danger to hearing, for the longer a discharge continues from a middle ear the more are inflammatory residues likely to be a disturbing element to future hearing. Properly taken roentgenograms are invaluable in determining the extent of the cellular development and often the degree and possible extent of the infected area. They should always be taken whenever and wherever the means of so doing are available.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Experimental Pathology, London

12: 357-460 (Dec.) 1931

*Potency and Distribution in Serum Fractions of Antiviral Body Obtained by Immunization of Horse with Vaccinia Virus. J. C. G. Ledingham, W. T. J. Morgan and G. F. Petrie.—p. 357.
Adsorption Experiments with Rous Sarcoma Virus. Antionette Pirie.—p. 373.
Experiments on Production of Tumors on Somatic Mutation Hypothesis. J. C. Mottram.—p. 378.
An Investigation into Streptococci Found in Certain Diseases of Skin. J. Kinnear.—p. 384.
*Serum Treatment of Anaerobic (Vibrion Septique) Infections in Mice. S. Craddock and H. J. Parish.—p. 389.
Studies on Protein-Free Suspensions of Viruses: III. Resistance to Heat and Disinfectants of Protein-Free Eluates of Bacteriophage and Fowl-Pox Virus. I. J. Kligler and L. Olitzki.—p. 393.
Experimental Observations with Low-Dose Radiation. W. R. Spurrell.—p. 402.
Filtration of Virus of Foot-and-Mouth Disease Through New Series of Graded Collodion Membranes. I. A. Galloway and W. J. Elford.—p. 407.
Some Data Concerning Infectivity, Survival and Powers of Diffusion of Virus of "Louping-Ill." J. Czarkowska-Gladney and E. W. Hurst.—p. 426.
*Studies on Rat Thyroids. A. M. Drennan, J. Malcolm and G. A. Cox.—p. 430.
Tar Cancer in Mice: III. An Apparatus for Preparation Under Standard Conditions of Highly Potent Carcinogenic Agent of Low Toxicity. A. F. Watson.—p. 441.
*Quantitative Analysis of Lethal Power of Strain of Type I Pneumococcus. G. F. Petrie and W. T. J. Morgan.—p. 447.

Potency of Serum Fractions in Antivaccinal Serum.—Ledingham and his associates secured an antivaccinal serum by hyperimmunization of the horse with the virus of vaccinia. The antiviral body is associated with the euglobulin as well as with the pseudoglobulin fractions of the serum, but not with the albumin. The euglobulin fraction contains the antibody in highest concentration per gram of protein, but its absolute amount falls below that present in the pseudoglobulin fraction. In the course of hyperimmunization pursued intermittently over a period of nine months, the natural serum of the horse exhibited variations in potency, but it was established that falls in titer could be succeeded by maximal titers in response to further stimulation. The serum when administered simultaneously with the virus proved highly effective in controlling experimental infections of rabbits with strains of virus of cutaneous and testicular origin. Though therapeutic effects from late administration of serum have not been definitely elicited in the experiments adduced, it is held that success in this direction may depend largely on dose of virus, and that further experimentation on therapeutic lines is desirable, if only to secure some valid basis for its exploitation in human infections with this virus.

Serum Treatment of Anaerobic Infections.—Craddock and Parish describe experiments on mice in which they noted that Vibrion septique antitoxic serum confers complete protection against massive doses of living culture of Vibrion septique. It is also highly effective in the prophylaxis and treatment of infections produced by washed spores with calcium chloride as activator. A concentrated antitoxin, injected intravenously or intraperitoneally in divided doses, protected from 75 to 100 per cent of mice against 100 fatal doses of spore-activator mixture. Mice nearly moribund five hours after infection recovered after the intravenous administration of antitoxin. A most important indication from this research is that, when antitoxin is used therapeutically in the treatment of anaerobic infections in man, it should be given without delay in large doses by the intravenous route.

Rat Thyroids.—Drennan and his associates attempted to produce a diet adequate for normal growth in the rat, but sufficiently low in iodine to produce thyroid change. This was best achieved by a diet of white bread and fresh milk. After a period rats on this diet developed an active type of gland, low in iodine content, and large relative to the body weight. The addition of small amounts of iodine to such a diet kept the thyroids small, colloid, and with a rich iodine content. As iodine was again omitted from the diet, the thyroids tended to enlarge and assume the active type of gland similar to those in the animals that had no iodine from the beginning.

Lethal Power of Type I Pneumococcus.—Petrie and Morgan investigated the factors that influence the lethal power for mice of a virulent type I pneumococcus culture. They noted that the density and the virulence of the culture determine its lethal power. The controllable factors that influence the test animal were likewise examined. Stocks of mice from different sources appear to show some variation in susceptibility. There is no sex factor, nor does the weight factor influence the mortality, although it modifies the survival time. A small proportion of mice—from 5 to 10 per cent—possess an innate resistance to small doses of pneumococci. A characteristic curve relating dosage to percentage mortality among mice was obtained and furnished evidence that an average lethal dose of a culture can be calculated by the use of reasonable numbers of mice; this dose contains one diplococcus. The percentage mortality, the mean death time, and the distribution of the deaths in appropriate time intervals in a group of mice that receive a definite dose of a test culture are criteria by means of which the lethal power of any culture of type I pneumococcus may be specified.

British Journal of Ophthalmology, London

16: 1-64 (Jan.) 1932

Physiology of Weeping. E. T. Collins.—p. 1.
Convergence of Human Binocular Vision. N. A. Stutterheim.—p. 20.
Two Rare Corneal Conditions: I. Acute Conical Cornea. II. Keratoconus Posticus Circumscriptus. T. H. Butler.—p. 30.
Spontaneous Cure of Cataract. T. H. Butler.—p. 35.
Diabetic Retinitis in Patient Aged Twenty-Two. P. H. Adams.—p. 38.

British Journal of Radiology, London

4: 621-736 (Dec.) 1931

*Lines of Arrested Growth in Long Bones in Childhood: Correlation of Histologic and Radiographic Appearances in Clinical and Experimental Conditions. H. A. Harris.—p. 622.
*Abrodil: Experimental Investigation. R. S. A. Heathcote and R. A. Gardner.—p. 641.
Methods of Reducing the Errors in Electrical Testing Due to Variations in Skin Resistance. H. Hartridge.—p. 652.
Radiology of Chest. E. W. Twining.—p. 658.
Summary of Paper on Effect of Split Doses of Gamma Radiation on Tissue Cultures in Vitro. F. G. Spear.—p. 680.
Fields of Radiation from Radon Seeds. H. S. Souttar.—p. 681.
Radiographic Demonstration of Vena Azygos. W. J. Mowat.—p. 690.
Measurement in r Units of Gamma Rays from Radium. W. V. Mayneord.—p. 693.
A Two-Valve Transformer Unit for Diagnosis and Therapy. W. E. Schall.—p. 711.
Calibration of Lovibond Tintometer and Actinometer for Levy-West Ultraviolet Light Pastilles. P. Wright.—p. 715.

Lines of Arrested Growth in Long Bones.—By roentgen examination, Harris has demonstrated that lines of arrested growth are of frequent occurrence in both animals and plants. In man, at the time of cessation of growth in the long bones, during the eighteenth to the twentieth years, such lines are normally laid down. In neonatal life, as a result of the catastrophic changes involved at birth, an arrest of growth concomitant with the loss of weight in the first week of life is of such frequency as to be almost a normal feature. During the whole period of growth any severe interference with metabolism, as a result of starvation, acute infection, or metabolic disease such as diabetes, induces premature senescence in growing tissues, and the fact is unfailingly registered in the structure of the bone by the production of a transverse line of arrested growth. The process of absolute cessation of growth in the long bones by cessation of proliferation in the cartilage columns, by calcification and ossification in which the transverse trabeculae are maximally developed, is a process common to the long bones of all mammals. Throughout the growth period this ultimate process of formation of a line of cessation of growth is kept in mind as it were; given any nociceptive stimulus, the process is initiated but pursued only to an extent dependent on the strength and duration of the stimulus. The process of arrest of growth in illness is a preliminary but incomplete exhibition of the ultimate cessation of growth which is the common fate of all growing animals. In certain cases the nociceptive stimulus is so severe that complete calcification and ossification of the growth cartilage occurs. This is seen in cases of children who, during the second decade, suffer severe infections in quick succession. Complete union of the epiphyses of the long bones in boys and girls of from 14 to 16 following severe exanthems has been reported frequently, and it is an index of the fact that the growth processes in the cartilage have been finally suppressed. Any hospital outpatient department will present cases of this type, many of them labeled "infantilism," whereas they are really examples of "premature senility" of the skeleton.

Skiodan. — Heathcote and Gardner report that skiodan, given intravenously in dogs up to 7 Gm. per kilogram of body weight, is nontoxic. The speed at which the injections are made does not seem to be important. The isolated heart and intestine of the rabbit are scarcely affected by solutions of skiodan of strengths comparable to those which might occur in man after administration of the normal dose. Skiodan, in doses up to 3.33 Gm. per kilogram, given intravenously, produces only minimal changes in the blood pressure. In larger doses, up to about 7 Gm. per kilogram, a fall of blood pressure is produced, which is less pronounced and less prolonged than that previously described with iopax. Up to 3.33 Gm. per kilogram, skiodan produces no appreciable effects on the respiration. With increasing dosage, however, there is a progressive slowing of the respiration. Death is caused at about 8 Gm. per kilogram from asphyxia. No pathologic changes were observed to occur in animals which had received large doses, 7 Gm. per kilogram, on one occasion, or which had been given 1.66 Gm. per kilogram daily for six days. Again, in the organs of animals previously rendered nephritic by uranium, there were found, following the administration of large amounts of skiodan, no changes other than those produced by the action of that metal. Skiodan is excreted by the kidneys of dogs rendered nephritic with uranium, although the rate of excretion is greatly reduced from the normal. As a result, the concentration in the urine may be less than that required to produce roentgen shadows. Skiodan is efficient in making the urine radiopaque and is a satisfactory medium for urography in dogs. It is superior to iopax in the speed with which it is excreted, in the dose necessary for the production of urograms and, in the dog at least, in their quality.

Edinburgh Medical Journal

39: 1-68 (Jan.) 1932

Edward Clark Chair of Child Life and Health. C. M'Neil. —p. 1.
Myositis Ossificans Progressiva. W. F. Mair.—p. 13.
*Heart Block in Toxic Goiter: Two Cases. J. D. S. Cameron and I. G. W. Hill.—p. 37.

Heart Block in Toxic Goiter.—Cameron and Hill report two cases of heart block complicating toxic goiter and present an account of their subsequent course as followed by the electrocardiograph. The effect of various drugs and anesthetics on the condition is recorded. An association with recent throat infection was noted in each case: this relation is discussed. The comparative rarity of heart block as a feature of such goiter cases is illustrated by a series of 1,744 cases drawn from the literature.

Guy's Hospital Gazette, London

46: 1-14 (Jan. 9) 1932

Beginnings of Bright's Disease. W. Hale-White.—p. 3.
Some Cases of Excessive Calculus Formation. C. de V. Green.—p. 14.

China Medical Journal, Shanghai

45: 1131-1231 (Dec.) 1931

*Yaws and Syphilis: Problems, Clinical Studies and Experimental Evidence Concerning Their Relationship. C. M. Hasselmann.—p. 1131.
Stones of Ureter: Advantages and Disadvantages of Diagnosis by Uroselectan and Abrodil. W. S. Parsons.—p. 1155.
*A Common Physical Sign in Phthisis. H. G. Anderson.—p. 1165.
Brief Trial of Tricresol Ring Test. H. G. Anderson.—p. 1169.
Oral Conditions and General Health. A. M. Kazmirow.—p. 1170.

Yaws and Syphilis. — Hasselmann states that the fundamental biologic difference between the two spirochetes producing yaws and syphilis, respectively, rests on their different organotropism; i. e., their different behavior in the body tissue of the affected host. The two parasites are indistinguishable by morphologic staining and cultural methods so far. Spirochaeta pertenuis is ectodermotropic and not able to multiply and survive for any length of time in mesodermal layers. Spirochaeta pallida, on the other hand, invades all tissues, with preference to mesodermic tissues. This different organotropism explains the differences in the clinical course, pathology and immunologic phenomena of the two diseases. The terms primary, secondary and tertiary lesions, used in syphilis and indicating a certain sequence, should not be applied to yaws infection as they would be misleading. The successive stages of frambesial crops are most liable to overlap one another in such a way that the initial, primary lesion may persist throughout the stage of metastatic generalization and even change into a late, ulcerative form with no or only a modified metastatic crop of frambesids occurring. Immunity in both spirochetal diseases is that of antiaggressive immunity found in certain bacterial infections. It has a scale ranging from full susceptibility with unlimited propagation of spirochetes to low grade resistance with restriction of their multiplication and, finally, to full immunity in which the multiplication of the respective parasites is completely suppressed, and the spirochetes die out after their lifetime has elapsed. Heterologous immunity (cross-immunity) exists between yaws and syphilis, developing, however, much later than the homologous immunity. Coexistent infection with yaws and syphilis, as shown by clinical and experimental experience, is possibly due to the late onset of cross-immunity, thus explaining the presence of syphilitic lesions of the cardiovascular as well as of the central nervous system in patients showing at the same time frambesial efflorescences. There are no fundamental differences between the two spirochetal diseases in regard to serology and therapy, though in yaws infection arsphenamine is most efficacious with bismuth compounds far behind and mercury and potassium iodide of little or no value. Injection of killed spirochetal material produces the same serologic and immunologic phenomena as natural infection. Vaccine therapy, therefore, opens new lines for the preventive treatment of metasyphilis. On the basis of his observations the author concludes that, though belonging to the same group of spirochetosis, striking differences in the clinical course, the morphologic appearance and the histopathology of the lesions, general pathology and immunology —all of which are explained by the different tropism of the two respective parasites—prove along with epidemiologic reasons that framboesia tropica and syphilis are two distinct and separate disease entities.

A Common Physical Sign in Phthisis.—In 97 per cent of more than 500 cases of tuberculosis of the lungs and their hili Anderson heard a bruit over the subclavian triangles; in 3 per cent of the cases he heard a similar bruit over the first part of the subclavain arteries. The bruit resembled the one heard over the brachial artery as the pressure in the cuff is released during a blood pressure determination. It is unassociated with any cardiac bruit or with similar bruits which may be heard in any other of the branches of the aorta. Its intensity increases in expiration and is also increased by increased pressure of the stethoscope chest-piece. The intensity is also apt to vary somewhat from examination to examination. When present there have never been lacking other evidences of tuberculous infection of the lung apexes or their hili. In one third of the cases the bruit was bilateral; in rather more than one half it was found only on the left side, and in rather less than one sixth it was present only on the right side. In about one tenth of the cases in which it was unilateral it was present on the side opposite to that of the more severely affected lung. In cases in which this bruit was heard, hilar involvement could also be detected by percussion in more than half of the cases. Wasting or abnormally good development of the overlying muscles appeared to have no influence on the intensity of the bruit; indeed, its frequency in advanced cases of phthisis was only half that found in the whole series, and the frequency in ambulant cases twice that in hospital cases. The author designates this auscultatory sign of tuberculosis as the mediostino-arterial bruit.

Japanese Journal of Gastroenterology, Kyoto

3: 281-343 (Dec.) 1931

Pigment Excreting Function of Liver in Experimental Disturbance of Kidneys. T. Matsuda.—p. 281.
Excretory Function of Liver: I. Uric Acid Excreting Function of Liver. T. Matsuda.—p. 293.
Id.: II. Influence of Autonomic Nerve Poisons on Uric Acid Excreting Function of Liver. T. Matsuda.—p. 308.
Urea Excreting Function of Liver: I. Excretion at Normal Times and Relationship Between Liver and Kidneys. M. Sakai.—p. 316.
Id.: II. Influence of Autonomic Nerve Poisons. M. Sakai.—p. 329.

Annales de Dermatologie et de Syphiligraphie, Paris

2: 1241-1388 (Dec.) 1931

*Erysipeloid: Transmission of Swine Erysipelas to Man. G. Belgodere. —p. 1241.

Erysipeloid.—Belgodere discusses the inadequacy of the term "erysipeloid," reviews the history of the disease, describes a personal case, and outlines the general characteristics and treatment of the disorder. Slight lesions allow the infecting bacillus to obtain a foothold and after an incubation period of one or two days erythema is the first symptom noted. This erythema occupies generally the dorsal aspect of the fingers or hand but may invade the palmar aspect and is of a deep wine color, nonelevated, clearly delimited and serpiginous, painless and more or less itchy. This period lasts about ten days. In serious cases infiltration may become more pronounced with consequent swelling of the parts; lymphangitis may appear with involvement of the corresponding lymph nodes, and even generalized infection may set in. Phalangeal arthritis is a frequent complication. Differential diagnosis is easily made from erysipelas, lymphangitis and erythema multiforme by observation of the peculiar characteristics of erysipeloid. The author fully describes the causative bacillus and states that this organism offers little resistance to heat, being killed in a few minutes at from 55 to 58 C., thrives in darkness, wet ground and water and is quickly destroyed by light and desiccation. Although the ordinary infections in man are usually of benign form, serious consequences and even death may follow contamination by cultures or by laboratory and vaccination accidents. Bacteriologic diagnosis attempted from a drop of blood taken from the border of the erysipeloid plaque usually results in failure; examination of the serous exudate from a blister or from lesions due to scratching is more likely to produce the desired result; histologic sections made from a piece of skin, especially if previously kept in a medium favorable to the reproduction of the bacillus, offer the best chances of success. The author discusses the prevalence of erysipeloid due to contact with marine fish and crustaceans, and mentions the finding of the bacillus in certain diseases of birds, poultry and sheep, and in river water, animal feces, decayed meat, dead mice, and so on. He states that it seems to be a well established fact that the bacillus of erysipeloid is only a common organism, prevalent everywhere and of unstable virulence. He outlines the study of immunity reactions made by several authors and finds proof of the production of exotoxins by the bacillus. Treatment of benign erysipeloid is limited to antiseptics, emollients or resolvents, especially sulphonated bitumen ointments; serious infections call for specific medication by serotherapy or vaccine therapy, which has been so successful in swine erysipelas. The author closes with the following adequate definition of the disease: Erysipeloid is a cutaneous disorder due to inoculation in the dorsal aspect of the hand of a special bacillus, called the bacillus of swine erysipelas because it is the pathogenic agent of this disease, but this bacillus is very prevalent and lives as a saprophyte on substances of animal origin and also on other animals whose contact may cause contamination.

Archives de Médecine des Enfants, Paris

34: 701-777 (Dec.) 1931

*Measles and Tuberculin Cutireaction. P. Lereboullet and P. Baize. —p. 701.
Mechanism of Immunization by Calmette's Vaccine. B. Frias and E. J. Roldan.—p. 713.

Measles and Tuberculin Cutireaction.—Lereboullet and Baize assert that other allergic reactions besides the tuberculin cutireaction can be modified in the course of measles. During the exanthem in measles, changes have been noted in the Wassermann reaction, the Widal reaction and even simple intradermal reactions to foreign proteins. However, the Schick test is not modified. Measles is not the only infection capable of rendering negative a positive tuberculin cutireaction; others are influenza, whooping cough, typhoid, scarlet fever, german measles, chickenpox, diphtheria. Some of these are not accompanied by the slightest exanthem. Measles is the only disease that almost constantly suspends tuberculous allergy, whereas the other diseases, whooping cough, pneumonia, and typhoid show anergy only in exceptional cases (usually in the child); however, influenza, related clinically with measles, frequently modifies allergic states. The authors believe that the change from positive to negative of a cutireaction during measles is a proof of a temporary giving way of the allergic state and a local factor is responsible. This local factor is a catarrhal inflammation of the respiratory tract that causes engorgement and congestion of the corresponding lymph nodes, particularly the tracheobronchial ones. Under the influence of bacteria and their toxins, the old tuberculous foci are modified, the caseous tissue is softened, and the encystment becomes less marked; the bacilli multiply, mobilize, pass into the blood circulation and invade the body. The secondary infection thus acts mechanically by provoking the infection, the suppuration and the softening, of the bronchial lymph nodes. At the same time the phagocytic activity is decreased and the body resistance for the tuberculous infection becomes feeble. In summary, the positive tuberculin cutireaction disappears more completely and suddenly in measles than in any other disease, with the possible exception of influenza. The phenomena can only be the result of a truly specific disease and can be explained in the giving way of the protective immunity for tuberculosis.

Bull. et Mém. de la Soc. Méd. des Hôpitaux de Paris

47: 1795-1828 (Dec. 7) 1931

Bismuth Agranulocytosis. A. Sézary and G. Boucher.—p. 1795.
Primary Gonococcal Meningitis Treated by Autolysate Vaccine. P. Émile-Weil, Duchon and Bertrand.—p. 1799.
Gonococcal Meningitis: Case. F. Coste, E. Rivalier and F. Layani. —p. 1803.
*Removal of Parathyroid Adenoma for Diffuse Lesions and Decalcification of Bones. E. May and J. A. Lièvre.—p. 1808.
New Contribution to Therapeutic Use of Bismuth Subnitrate and Kaolin. G. Hayem.—p. 1819.

Removal of Parathyroid Adenoma for Diffuse Lesions and Decalcification of Bones.—May and Lièvre review the history of a typical case in which surgical suppression of a parathyroid adenoma arrested immediately the decalcification processes and a considerable improvement was noted in the clinical, humoral and roentgen signs. The patient gave a history of an attack of renal colic four years before and presented osseous pains, extreme sensibility of the skeleton, spontaneous fractures, tumefactions, all leading to absolute immobilization and impotence, and intense bony decalcification demonstrated by roentgenography; the accessory symptoms were gastric crises, attacks of tachycardia and obstinate constipation; there was no hypercalcemia (the importance in diagnosis is loss of bone calcium and that is demonstrated in the calcium balance by loss of calcium in the urine and feces). Following the intervention there was a change in the calcium metabolism toward the normal and this was followed by skeletal recalcification with an improvement in the clinical manifestations. After the operation the patient had a grave attack of tetany with psychic disturbances. This was observed in many other patients. Partial parathyroidectomy does not prevent this condition. These accidents should disappear on treatment and do not materially affect the postoperative results.

Journal de Chirurgie, Paris

38: 785-943 (Dec.) 1931

*Results of Surgical Treatment in Angina Pectoris. R. Leriche and R. Fontaine.—p. 785.
Operative Technic in Amputation of Cancerous Rectum by Abdominoperineal Route and Lowering the Colon to the Perineum. R. Soupault and R. Leibovici.—p. 816.

Surgical Treatment in Angina Pectoris.—Leriche and Fontaine assert that surgical cure of angina pectoris is possible. Three interventions have been reported: namely, the removal of all the cervical sympathetic chain with the stellate ganglion, the removal of the cervical chain to the level of the stellate ganglion, cutting the supero-external branches, and the removal of the stellate ganglion itself. The authors believe the question of the choice of an operation depends on the conservation or the suppression of the stellate ganglion, the center of the reflexes causing the crisis in angina pectoris. The results previously reported and the results (seventy-eight observations) of the present study led the authors to conclude that the extirpation of the stellate ganglion, whenever indicated, is not more dangerous than extraganglionic interventions. This intervention has succeeded when others have failed. One stellate ganglion should first be removed and, when this seems insufficient, the other ganglion should be removed. Success depends on the choice of the proper indications.

Journal de Médecine de Lyon

12: *733-766 (Dec. 20) 1931*

Anatomic Study of Malignant Pleuropulmonary Granulomatosis. M. Favre, P. Croizat and A. Guichard.—p. 733.
*Histopathology of Gastric Ulcer: Fifty-Two Gastrectomies. J. F. Martin and F. Rouquet.—p. 747.
*Nervous Forms of Malignant Granulomatosis. M. Favre, J. Dechaume and P. Croizat.—p. 757.

Histopathology of Gastric Ulcer.—Martin and Rouquet made microscopic examinations of fifty-two gastrectomy specimens. They assert that a histologic study in gastric ulcer should include material not only from the ulcerous lesions and the immediately adjacent parts, but also the gastric wall at some distance from the lesions. Their observations prove that all the tissue layers of the gastric mucosa are affected by the ulcerous condition and undergo two types of modification if the lesion has reached a sufficiently chronic state. 1. There is a process of destruction in the mucosa, primarily on the surface but with infiltration accompanied by acute, subacute or chronic types of inflammatory reactions, responsible for secondary degenerative lesions of the epithelial cells, muscular fibers, connective tissue and nervous tissue. 2. There is a process of reparation and neoformation in the entire gastric wall; in the mucosa it is supplemented by erosive lesions due to periulcerous gastritis with atrophies and cicatricial or hyperplastic type of glandular repair (diffuse glandular hyperplasia, marginal pseudo-adenomas and microcysts.) The hyperplasias of the muscularis mucosae and the muscle coat are diffuse or localized and can lead to the formation of true myomas; the hyperplasia of the serosa is of a periulcerous lipoma origin: the myomatous thickening of the vascular walls and the neuromas are the expression of the same type of hyperplasia. The provocative cause of the gastric ulcer is connected with an inflammatory process which is sufficiently slow, destructive and regenerating at the same time and often forms the tumor type: this takes the aspect of marginal adenomas, soft myomas, lipomas and neuromas but not true benign tumors of the mucosa, muscle, adipose tissue or nerves: the single inflammation is the cause of these pseudotumoral hyperplasias. The authors in their study of the stomach state that the general rules of Favre and Dechaume apply: that, in an organ with chronic inflammation, the glandular elements that remain become organized, and together with the processes of degeneration there are parallel processes of neoformation and reconstruction; inflammatory epithelial neoformations resemble adenomas morphologically but nevertheless are not benign tumors. Nonepithelial tissues under the influence of chronic inflammation can also undergo hyperplasia and take on pseudotumoral aspects.

Nervous Forms of Malignant Granulomatosis.—Favre and his co-workers assert that anatomopathologic studies prove that most frequently the nervous manifestations of malignant granulomatosis in the region of the neural axis are nonspecific lesions of the neighboring structures. The granuloma penetrates into the bony canal or develops in situ at the expense of the bone or of epidural connective tissues. The granuloma cannot penetrate the dura mater, which acts as a strong barrier against granulomatous infiltration. The neural axis presents therefore only nonspecific lesions of a toxic or mechanical character due to compression by the contiguous granulomatous neoformation. In exceptional cases (one personal observation in 1913), the granuloma invades the neural axis, which then presents specific lesions. The leptomeninges undergo granulomatous change. The cells of the granuloma infiltrate the connective tissue sheaths and finally penetrate the nerve tissue itself. Invasion can take place at a distance from the cortex by vascular metastasis. This specific involvement of the neural axis raises the question of the behavior of the oligodendroglia in this condition. There is no histopathologic proof of a primary nervous form of granulomatosis. The clinical study reveals the protean character of the nervous manifestations whose anatomopathologic substratum is so variable. The cerebral manifestations consist of localizing neurologic signs or signs of intracranial hypertension associated or unassociated with osseous lesions. The spinal cord manifestations resemble those of compression, simulating Pott's disease, spinal neoplasm, and primary meningoradicular lesions. Aside from the characteristic roentgen picture of the spinal lesions there is not any specific criterion. A combination of the anatomic and clinical observations are against the theory of the existence of a primary nervous form of malignant granulomatosis. Infiltration of the nervous parenchyma, when it exists, is always secondary to another focus of granulomatosis. Roentgen therapy, although not curative, is effective for retarding the evolution of the nervous accidents that occur in the course of malignant granulomatosis.

Presse Médicale, Paris

39: 1805-1828 (Dec. 9) 1931

*Loewenstein's Blood Culture Method in Diagnosis of Tuberculous Bacillemia. I. Nanu, D. Jonnesco and C. Stefanesco.—p. 1805.
Blocked Hypertension. A. Dumas.—p. 1807.
Skin Disturbances in Venous Diseases: Varicose Ulcer. G. Delater.—p. 1808.

Loewenstein's Method in Diagnosis of Tuberculous Bacillemia.—Nanu and his co-workers assert that Loewenstein's blood culture method for the tubercle bacillus may be added to and in some instances replace the usual methods of direct examination or the inoculation into guinea-pigs. Loewenstein's medium contains monopotassium phosphate, sodium citrate, magnesium sulphate, aspargin, glycerin, starch, yolk of egg, congo red or malachite green. From 10 to 30 cc. of blood is collected in 10 per cent solution of sodium citrate, centrifugated and decanted, and 10 cc. of a 5 per cent solution of acetic acid is added. This is allowed to stand five minutes, is centrifugated and decanted again; the clot is washed in distilled water until the hemoglobin is removed, is inoculated into three or four tubes, and is placed in a thermostat. The cultures become visible in two weeks and the growth is abundant in one month. There should also be a control by direct examination and inoculation into guinea-pigs. Loewenstein reported encouraging results in the cultures from pulmonary, cutaneous, renal, articular and ocular tuberculosis and acute rheumatism (the latter, twenty-one cases, all positive). The authors in this report assert that blood cultures, in twenty-one cases of suspected tuberculosis or rheumatism, proved positive in one case of tuberculous pleuroperitonitis and one case of acute polyarticular rheumatism with endocarditis and pericarditis. This method may also be used for examination of pathologic material, negative on direct examination. In that case it is advisable to wash the substance several times in 15 per cent sulphuric acid to eliminate associated micro-organisms. The authors obtained positive results within nine days from cultures of purulent pleural fluid, within ten days from purulent arthritis of the wrist, and within nine days from serohemorrhagic pericarditis. A blood culture in a case of inguinal adenopathy resembling tuberculosis was negative, however. The authors believe that culture for tubercle bacilli may be advisable when direct examination is negative.

39: 1845-1868 (Dec. 16) 1931

*Effect of Temperature Changes on Certain Phenomena of Clinical and Experimental Sensitization. Pasteur Vallery-Radot, G. Mauric and A. Hugo.—p. 1845.
*Ketogenic Diet in Epilepsy. P. Pagniez and A. Plichet.—p. 1847.
Indication for Surgical Intervention in Pott's Disease in Child. A. Richard and J. Calvet.—p. 1849.
Consideration of Various Mineral Waters Used in Treatment of Rheumatism. Mathieu-Pierre Weil.—p. 1853.
Postrachianesthetic Paralysis of Craniospinal Motor Nerves. C. Angelesco and S. Tzovaru.—p. 1855.

Effect of Temperature Changes on Phenomena of Clinical and Experimental Sensitization.—Pasteur Vallery-Radot and his co-workers assert that their observations (forty-five patients) substantiate their belief that temperature influences crises in asthma of the adult. In order to be effective, this temperature must attain a "threshold" value rarely lower than 38.5 C. (101.3 F.). Hypothermia or hyperthermia can prevent anaphylactic shock but the eventuality is not distinctly a matter of cause and effect. The authors conclude that in man hyperthermia prevents the clinical manifestations from being produced in certain conditions of hypersensitivity; in the animal these thermic modifications inhibit the manifestations of anaphylactic shock. In man, hyperthermia has no action on anaphylactic antibodies and hence there is no desensitization; the same is true in the animal. In the hypothermic or hyperthermic animal a second injection usually succeeds in desensitizing. Pyretotherapy can be used in human anaphylaxis, not to remove the state of hypersensitivity, since the antibodies are responsible for that, but to make the conditions suitable for desensitization. Certain anaphylactic syndromes can be treated by an association of hyperthermia and desensitization.

Ketogenic Diet in Epilepsy.—Pagniez and Plichet assert that this diet should be adhered to as strictly as a regimen in diabetes. It consists in the suppression of carbohydrates, the replacement of the carbohydrates by fats and fatty substances, and the reduction of nitrogenous substances (meat). Before this diet is begun the patient is put on a reduced water diet for forty-eight hours. The second day, if the hunger is unbearable, the patient is given for his noon and evening meal a salad with plenty of olive oil. If the patient should get thin, the diet should nevertheless be continued. Constipation should be combated by magnesia, liquid petrolatum or castor oil. This regimen should be continued until there has been improvement or sedation. An exact record of the number of attacks should be kept. Acidosis, which is the result of this diet, is not the important factor. Recent workers believe that the action is due to a modification in the water metabolism. Whatever the exact interpretation may be, the authors recommend this regimen in view of the favorable results they have obtained.

Minerva Medica, Turin

2: 813-844 (Dec. 15) 1931

*Hyaline Degeneration of Spleen Associated with Chronic Lead Poisoning. A. Fontana.—p. 813.
Chloridemia in Patients with Benign and Malignant Tumors. M. Mairano and S. Teneff.—p. 820.
Subacute Leukemia: Cases. L. Ferrannini.—p. 824.

Hyaline Degeneration of Spleen in Chronic Lead Poisoning.—Fontana states that he never saw such marked hyaline degeneration of the spleen as he saw in a patient aged 53 who died as a result of a grave attack of uremia. The clinical diagnosis was chronic lead poisoning, hypertension due to malignant nephrosclerosis, cardiac hypertrophy, visceral stasis and left hydrothorax. He calls attention to this special condition associated with chronic lead poisoning because such a diffuse and grave hyalinosis should not be confused with ordinary arteriosclerosis of the vessels of the spleen; also owing to the complete absence of vascular calcification and the slight positive reaction obtained for the fats with the sudan dye and osmic acid. Something had certainly intervened (lead) that had caused a fibrous vascularitis, an endarteritis obliterans, a hyalinization prevailingly arteriocapillary in which, according to the conception of Pende, the syndrome, owing to the constitutional abiotrophic character of one or more organs, was developed, and was speeded up by the chronic intoxication.

Policlinico, Rome

39: 1-60 (Jan. 1) 1932. Medical Section

*Modifications of Acid-Base Equilibrium of Cerebrospinal Fluid in Some Pathologic Conditions. C. Manzini and P. Caramazza.—p. 1.
*Clinical and Anatomopathologic Contribution to Study of Extramedullary Tumors. F. Sabatucci.—p. 13.
*Malignant Lymphogranuloma. G. Jona and G. Dalla Torre.—p. 25.

Modifications of Acid-Base Equilibrium of Cerebrospinal Fluid.—In a study of the acid-base equilibrium of human cerebrospinal fluid, Manzini and Caramazza found a hydrogen ion concentration varying between p_H 7.41 and p_H 7.46 and an alkali reserve of from 43 to 50 volumes of carbon dioxide per cent. They think that the slight degree of alkalinity of normal cerebrospinal fluid compensates, through its relative autonomy and lack of corpuscles, for its lower content of bicarbonate. This possibly explains why it possesses a lower regulatory power than the blood serum although its p_H is practically equal to that of the blood. It is consequently necessary to estimate not only the hydrogen ion concentration but also the alkali reserve in studies of the acid-base equilibrium of cerebrospinal fluid. Variations from normal are found especially in inflammatory conditions of the meninges and depend on the gravity and form of the disease. In acute meningitis there is a true acidosis and in the tuberculous form one finds an uncompensated acidosis. Hydrogen ion concentration is lowered but seldom in the final stages of the disease. In meningism and serous meningitis the acid-base equilibrium remains unaltered; also in syphilitic conditions of the cerebrospinal axis if there are no concomitant meningeal lesions, in cerebral tumors and in hydrocephalus. In neoplasm of the hypophysis with syndrome of diabetes insipidus and in true uremia a well defined true acidosis is encountered. In the uremia of eclampsia there is no modification.

Extramedullary Tumors.—From the clinical and anatomopathologic point of view Sabatucci discusses a case of intradural extramedullary tumor that gave rise to peculiar manifestations: (1) protracted course of the disease over many years with but few clinical symptoms in the presence of a malignant tumor; (2) peculiar aggravation of the symptoms after an injection of iodized poppy-seed oil 40 per cent, which introduces a reasonable contraindication for cases in which opportunity for a surgical intervention exists; (3) favorable results of roentgen therapy when surgery was necessarily partial, and (4) anatomic rarity of the tumor, which was a fibroblastic sarcoma of angiomatous type.

Malignant Lymphogranuloma.—Jona and Dalla Torre state that malignant granuloma is an entity clearly defined by its clinical symptoms and histologic characteristics and that, although in many cases it cannot be diagnosed by direct observations, pathognomonic proof of its presence consists in the finding of Sternberg's tissue with its typical polynucleated cells. Malignant lymphogranuloma does not belong to the hyperplasias or to the neoplasias but is essentially an inflammatory process. This is evidenced by its clinical appearance with febrile periods and intermittent enlargement of the spleen and liver; its histologic changes which testify to its inflammatory type; the inflammatory character of the splenic tumor which is always present even when not of actual granulomatous nature. Malignant granuloma is a specific granulomatous process without any relation to tuberculosis: this is proved by uncomplicated cases, which evolve from beginning to end with their proper characteristics distinct from those occurring in tuberculosis; cases in which histologic and biologic examinations exclude tuberculosis and in which there is complete absence of any reaction to tuberculin. Frequent association with tuberculosis explains the contradictory reports on histology of and experimentation on granuloma. From the clinical point of view, classification of malignant granuloma is founded on its topographic distribution: peripheral form including cervical and cervico-axillary-inguinal, mediastinal form including splenomesenteric and gastro-intestinal, and cutaneous form. From the point of view of its effects it should be divided into a mechanical form with disturbances occasioned by its different sizes and a toxic form with special repercussive effect on the circulatory system and production of fatal anemia. The course of malignant lymphogranuloma may be acute, subacute or chronic with remissions, and leads to death in from one to five years. Its etiology is still obscure and its therapy unsuccessful.

Prensa Médica, Havana

22: 1-35 (Nov.) 1931

Prognosis of Chronic Pulmonary Tuberculosis. J. J. Bosco.—p. 4.
*Surgical Treatment of Pott's Disease by Costal Implant. A. Gutierrez and B. Labandibar.—p. 14.
Work of Cured Tuberculous Patients. L. Bard.—p. 27.

Surgical Treatment of Pott's Disease by Costal Implant.—Gutierrez and Labandibar recommend the use of a costal implant because it is available to the surgeon in a preliminary operation without moving the patient or leaving its preparation to an assistant, it offers the anatomic requirements of a good implant and represents adaptable material on account of its flexibility. Both steps of the operation can be done under local anesthesia. In the first step the skin and subcutaneous cellular tissues are infiltrated with a 0.5 per cent solution of procaine hydrochloride, the muscles with a 0.25 per cent solution and the intercostal nerve at the posterior end of the incision with a 0.5 per cent solution. The technic calls for an incision parallel to the rib and in the form of a supine C which allows of ample exposure of the desired rib segment and of eversion of the skin flap. The incision should be 4 cm. longer than the implant, which should be cut anteriorly to the costal angle of the seventh, eighth or ninth ribs and should not include any part of the cartilaginous portion. Two incisions of the periosteum are made, one on the upper and one on the lower border of the rib so as to conserve the anterior part of the periosteum. In dissecting the implant, one should take care not to injure the parietal pleura. In the second step, anesthesia is obtained as in the first with a 0.5 per cent solution of procaine hydrochloride for the superficial tissues and a 0.25 per cent solution for the muscles. A curvilinear incision takes the flap away from the median line and avoids superimposition of the cutaneous with the deeper incision. The flap dissected and everted is isolated from the field of operation with gauze, the spinal processes are exposed, and the supraspinous and interspinous ligaments are sectioned in the median line. The spinal processes, two above and two below the lesion, are split vertically to the vicinity of the neural arch and fractured on one side, the angularity of the fracture is corrected by transverse pressure exerted on both sides, and the implant is inserted. Two distal sutures of heavy catgut through the supraspinous ligaments and the muscles serve to retain the implant, then a central suture followed by the remaining ones complete fixation. Patients are put on a hard bed for thirty or forty days before being allowed to walk. Plaster-of-paris, celluloid or ordinary reenforced corsets are used for from four to six months. Results have been uniformly satisfactory in the eleven patients treated by the authors, who advise against this operation in patients presenting tuberculous abscesses or fistulas, advanced visceral lesions of tuberculous nature or cachexia.

Revista de Medicina y Cirugia de la Habana, Havana

36: 875-940 (Dec. 31) 1931

Unilateral Renal Hematuria of Undetermined Origin. A. Diaz Albertini and A. G. Casariego.—p. 875.
Atypical Transverse Presentation: Thoracoventral Position. F. Loredo.—p. 879.
*New Procedure in Hysteropexy. J. A. Clark.—p. 886.
Laryngeal Cancer and Its Treatment. J. C. Gros.—p. 897.
Impressions of a Scholar: Part III. R. Machin.—p. 910

New Procedure in Hysteropexy.—According to Clark, this new procedure is to be used only after the menopause. He uses the median incision below the umbilicus, splits the uterus anteroposteriorly down to the supracervical segment, and paints the mucosa with tincture of iodine. If the uterus happens to be congested, an assistant compresses the uterine arteries. Deep dissection of the mucosa follows, with resection at the lower limit of the incision and cauterization of the cervical canal. Three sutures of number 3 chromic catgut embracing the denuded uterine cavity close each half of the uterus; one suture is used circularly under the serosa to close the upper part of the cervical canal. An incision is made through each rectus abdominis muscle, the corresponding half of the uterus is pulled through, and the two halves are sutured together in the median line. Simple drainage with gauze is advisable.

Semana Médica, Buenos Aires

38: 1673-1740 (Dec. 3) 1931. Partial Index

Tuberculous Etiology of Erythema Nodosum: Experimental Confirmation. R. Cibils Aguirre.—p. 1673.
Retrobulbar Neuritis of Diabetic Origin. A. J. Manes and J. Malbrán.—p. 1676.
Surgical Treatment of Cranial Hypertension. M. Balado.—p. 1683.
Aniridia: Case. R. R. Gil and C. A. Locatelli Rivas.—p. 1691.
*Painful Nodular Growths of Ear. A. A. Fernández and J. L. E. Monserrat.—p. 1693.
Albee's Operation for Fractures of Vertebrae Without Any Lesion of the Nervous Substance. T. Gjoia.—p. 1700.
Trauma of Urethra: Emergency Surgery of Urinary Tract. J. Salleras.—p. 1705.

Painful Nodular Growths of Ear.—Fernández and Monserrat report a case of painful nodular growths in the ear of an adult. They regard the condition as an entity readily differentiated from epithelioma, cysts, gouty tophus, lupus erythematosus, several types of verrucae, keratosis senilis and the darwinian tubercle. The authors review the physiologic, topographic and histologic description of normal and pathologic glomi given by Masson in *Lyon Chirurgical* **21**:257 (June) 1924 (abstracted in The Journal, Aug. 23, 1924, p. 648). Humoral proliferated glomi developed into small hard tumors, which were designated by Masson as angioneuromyomas. They may develop, in either an isolated or a multiple form, in any of the tactile dermal areas, although the greater frequency of their development as well as the larger number of nodules in an area is in relation to the greater or lesser tactile function of the organ. The causation is unknown, although in some cases trauma has been considered as the etiologic factor. The diagnosis is made by the clinical and histologic characteristics. The most important clinical symptom is a radiating and severe pain in the nodules. A profuse bleeding is provoked when the nodule is detached from its seat. The histologic examination of the tumor proves that it is formed by nervous, muscular and epithelioid cells around a vessel which acts as the center for the development of the tumor. The authors believe that the name of either glomic tumors or Masson's angioneuromyoma is more proper to designate the condition than the several names of "painful nodules of the ear," "chondrodermatitis nodularis chronica helicis," "chronic development of nodules in the ear," or "pathologic growths in the cartilage of the pinna," which heretofore have been given to the condition.

Deutsches Archiv für klinische Medizin, Berlin

172: 219-334 (Dec. 21) 1931

*Influence of Potassium on Pruritus. J. Sauer.—p. 219.
*Investigations on Mode of Action of Potassium. J. Sauer.—p. 223.
Blood Sugar Curves in Siblings of Children with Diabetes Mellitus. H. Schestedt.—p. 228.
Behavior of Capillaries and of Cutaneous Glands During Diseases of Blood. E. Jurgensen.—p. 233.
Functions of Blood Platelets. R. Jurgens and W. Naumann.—p. 248.
*Gelatin Tolerance as Functional Test of Liver and Its Relation to Modern Liver Diagnosis. R. Mancke and K. Rohr.—p. 260.
Clinical Experiences on Hypertension and Albuminuria. O. Franke.—p. 281.
*Bactericidal Power of Blood During Tonsillitis. W. Vogel.—p. 298.
Exogenic Insulinuria in Persons with Diabetes Mellitus. A. Athanasiou and H. Reinwein.—p. 307.
Pyemia Paratyphosa (B) Cured by Blood Transfusion. E. Jacobson.—p. 317.
Colloid Osmotic Pressure in Anemias. E. Kylin.—p. 321.

Influence of Potassium on Pruritus.—Sauer points out that although the sodium and calcium ions have been thoroughly investigated, little is as yet known about the therapeutic and physiologic action of the potassium ion. How he came to study the therapeutic action of the potassium ion he illustrates in the clinical history of a woman who had severe pruritus and occasionally urticaria. Influence of warmth made the pruritus more intense and for this reason the patient suffered most severely at night. This factor was considered indicative of a hypersensitivity of the sympathetic nervous system and the itching was designated as "sympathetic pruritus." Since various therapeutic measures, such as diets free from sodium chloride and deficient in protein, or acid or alkaline diets, or the application of epinephrine or calcium chloride urea were ineffective, sodium bicarbonate was tried, but this likewise was ineffective. However, when potassium bicarbonate was given, a considerable improvement was noted. In order to determine whether the efficacy was due to the potassium ion, potassium acetate was administered, and on the following day the pruritus had almost completely disappeared. Because of this favorable result the author employed the potassium therapy also in other cases of sympathetic pruritus. Patients with chronic lichen urticatus, in whom ointments and irradiations had proved ineffective, were given three times daily a tablespoonful of liquor potassii acetici, 30 cc., and aqua destillata, sufficient to make 200 cc. After two days the pruritus had disappeared but the skin eruption was not changed, but after eight days a gradual improvement became noticeable; yet after two weeks it appeared as if there was no further progress in the curative process and the pruritus recurred temporarily. In order to reactivate the potassium action, calcium lactate was given for one day and as a result of this the pruritus and eczema showed an exacerbation, but when potassium acetate was given once more the healing progressed further. Of nine patients with lichen urticatus, only two were refractory to the potassium therapy and both of them were men. In women the treatment was much more effective. Several cases of chronic eczema of the hands likewise yielded to potassium therapy.

Investigations on Mode of Action of Potassium.—In this paper Sauer reports his studies on the mode of action of potassium. His conclusions are as follows: 1. Oral administration of large doses of potassium acetate effects an increase in the potassium content of the serum and of the cerebrospinal fluid. 2. The calcium values in the serum soon follow this increase, for the ratio of calcium to potassium remains unchanged. 3. There is a displacement of the sodium from the serum. 4. The disappearance of the sympathetic pruritus following potassium therapy is not dependent on an increased potassium content of the serum.

Gelatin Tolerance as Functional Test of Liver.—Mancke and Rohr describe a tolerance test with gelatin and water which is suitable for clinical purposes. The alimentary hyperamino-aciduria indicates the severity of the disorder. By means of this test, disturbances in the intermediate protein metabolism can be determined. In order to differentiate the alimentary hyperamino-aciduria from that form caused by increased diuresis, a water tolerance test is made. The authors report about eighty-seven gelatin-water tolerance tests and about fifteen water tolerance tests on healthy persons and on those with disorders of the liver. The observations are compared with the results of the insulin-dextrose-water tests and of the galactose test. In normal persons the elimination of the amino nitrogen goes parallel with the quantity of urine. The concentration of the urine remains constant within comparatively narrow limits. Following a gelatin-water tolerance test there is a slight increase in the concentration, as an expression of the low alimentary hyperamino-aciduria of the normal person, but during the corresponding water tolerance test the concentration of the urine remains practically constant. The average concentration of the amino nitrogen in the urine of the normal person is, when determined according to Folin's method, about 25 mg. per hundred cubic centimeters, and after the gelatin-water tolerance test, it increases to 28 mg. In icterus catarrhalis gravis there is often a spontaneous hyperamino-aciduria, and besides this a marked alimentary hyperamino-aciduria can be produced by the gelatin-water tolerance test. In cases of minor severity, without an increase in the amino nitrogen of the urine, there develops, following the tolerance test, likewise a marked hyperamino-aciduria. Gradual differences can be demonstrated between these cases of icterus and acute atrophy of the liver. In the various forms of cirrhosis of the liver, without manifest stasis of the portal vein, there exists alimentary hyperamino-aciduria, which, corresponding to the developmental stage of cirrhosis, varies in severity. The authors show that an early diagnosis of cirrhosis of the liver is possible by a comparison of the results of the insulin-dextrose-water test with those of the gelatin-water test.

Bactericidal Power of Blood During Tonsillitis.—Vogel found that the bactericidal index of the blood is reduced in the course of every acute tonsillitis. It increases again, not synchronously with the improvement of the clinical manifestations, but only some time thereafter. This reduction of the bactericidal power of the blood is of no significance for the etiology of sequelae, for all, except one, of the cases on which the author made his observations ran their course without complications.

Wiener klinische Wochenschrift, Vienna

45: 1-32 (Jan. 1) 1932

Problems in Combat of Cancer. W. Denk.—p. 1.
*Irradiation in Cancers of Female Genitalia. W. Weibel.—p. 6.
Timely Remarks on Destiny of Cancer Hospitals. A. Fraenkel.—p. 8.
New Aims and Means in Metabolic Researches in Malignant Tumors. E. Freund.—p. 9.
Structure of Tumor Cell. B. Lipschütz.—p. 13.
*Irradiation of Carcinoma of Skin and Lips. L. Arzt and H. Fuhs.—p. 15.
Cancer of Rectum: Failure of Practitioner to Recognize It. H. Steindl.—p. 18.
Behavior of Blood Serum of Cancer Patients Following Operative Intervention. E. Ebner, F. Mandl and A. Pich.—p. 20.
Spontaneous Fracture of Odontoid Process of Epistropheus Without Injury of Spinal Cord. H. Hamperl and A. Maller.—p. 24.

Irradiation in Cancers of Female Genitalia.—In a tabular report, Weibel shows the frequency with which he employed either surgical and ray therapy combined or irradiation alone, in 350 cases of genital cancers during 1929 and 1930 and in 127 cases during 1931. In both periods nearly all the women with genital cancers were subjected to irradiation, but in 1931 the percentage that was given only ray treatment was larger than in the preceding period. When surgery was not resorted to, irradiation was always given as a combination of roentgen and radium treatment. In the first two years, roentgen therapy was the only form of irradiation used for postoperative treatment as well as for inoperable cases, because the available quantity of radon was limited. However, during 1931 radium was more extensively used. Preoperative irradiation with either roentgen rays or radium was never employed by the author, but he does not advise against it and thinks that in certain cases it could be tried. The postoperative roentgen irradiation he considers advisable for all cases. Combined radium and roentgen therapy is especially indicated for carcinoma of the cervix, whereas cancers of the corpus uteri are usually removed by surgical intervention. Vaginal carcinomas are frequently refractory to surgical treatment as well as to irradiation, but the author's own observations as well as those of others indicate that they yield best to radium irradiation. In carcinomas of the vulva, which likewise are difficult to influence, he employed surgery and postoperative irradiation. The ovarian carcinomas present a difficult problem, because they frequently are already inoperable when treatment is begun. In the majority of those which came under the author's observation, surgery and postoperative roentgen irradiation were resorted to. In regard to the technic of postoperative roentgen treatment, it is stated that the formerly customary treatment with large doses has been abandoned in favor of a prolonged treatment with smaller doses. The latter technic has also been adopted for inoperable cases.

Irradiation of Carcinoma of Skin and Lips.—Comparison of the results of a combination surgical and radium therapy with the results of exclusive radium treatment convinced Arzt and Fuhs that in carcinoma of the skin and of the lips these two methods are of about equal value. In consideration of this, it appears advisable to employ radium therapy exclusively, but the authors nevertheless employed in the majority of cases the combination of surgery and radium. The main reason for this procedure was the fact that exclusive radium treatment not only requires much more time but also necessitates the use of greater doses of rays, the latter being an important factor when the quantity of radium is limited. As to whether the surgical removal should be done with the knife or with the diathermic loop, the authors favor the latter. In analyzing their material according to the location of the carcinomas, they found that in carcinoma of the ear exclusive radium treatment fails, and consequently they consider the combined surgical and radium treatment absolutely necessary in such cases. In most other localizations the combination therapy gives about the same results as radium treatment alone. Only in carcinoma of the lip did the authors generally find exclusive radium treatment to be the method of choice.

Zeitschrift f. d. ges. Neurol. u. Psychiatrie, Berlin

137: 649-809 (Dec. 28) 1931

*Clinical, Roentgenologic and Anthropometric Studies on Person with Giant Growth Following Arrest of Growth. A. Mandl and F. Windholz.—p. 649.
Neurogenic Origin of Ankylosing Polyarthritis with Osteoporosis and of Endocrinous Disorders. L. Omorokow.—p. 709.
Experimental Production of Anosognosia of Hemiplegia. H. Hoff and O. Pötzl.—p. 722.
Tumors of Anterior Cornu of Lateral Ventricle. B. J. Scharapow and J. S. Weinberg.—p. 735.
Somatic and Biochemical Changes in Chronic Alcoholism. B. F. Goicher, E. O. Krasnowskaja and E. J. Tschernyschewa.—p. 745.
Critical Remarks About Freud's Subconsciousness. S. Fischer.—p. 775.
Nosologic Position of Paraphrenia. S. Fischer and O. Jaschke.—p. 791.
Nervous Connections of Sexual Apparatus. A. B. Josephowitsch.—p. 798.

Studies on Person with Giant Growth Following Arrest of Growth.—Mandl and Windholz report the case of a man with acromegalic giant growth, which set in after a marked inhibition of growth. The anamnesis revealed that at the age of 18 the patient's height was only 138 cm. (4 feet 6½ inches). The pathologically increased growth set in at the age of 21. At present, at the age of 31, the patient is 216 cm. (over 7 feet) tall. The present status is characterized by an enormous endosellar tumor, also by acromegaly and by hypogenitalism. As symptoms that differ from those mentioned in other reports the authors mention galactorrhea, the presence of female sex hormone in the urine and an abnormally small heart, with hypotony of the vascular system, while otherwise splanchnomegaly prevailed. Roentgenoscopy revealed a diffuse osteoporosis and a marked increase in the size of the skeleton. Many of the epiphyseal synarthroses were open. The sella turcica was enormously enlarged. The sternal termination of the right clavicle showed an extensive defect. The pneumatization of the temporal bone and the development of the frontal sinuses were inhibited. Anthropometric measurements revealed an abnormal shortness of the trunk and asymmetry between right and left. The enlargement was especially marked on the upper arms, thighs, hands, feet and face. The authors also discuss the causes of the developmental inhibition in the early life of the patient, and cite factors that speak against a pituitary origin. They finally assume a causal relation to cretinism. The patient underwent an operation for removal of a hypophyseal tumor, and the microscopic examination of the surgical specimen revealed an immature adenoma. The authors express the opinion that in the reported case there existed no primary growth tendency but that the giant growth was due to an increased reactiveness of the organs sensibilized by growth inhibition for the pathologic growth stimulation exerted by the hypophyseal tumor.

Spitalul, Bucharest

51: 493-546 (Dec.) 1931

Amaducci Reaction: Micro-Meinicke Reaction in Cerebrospinal Fluid. G. Marinescu, D. Grigorescu and G. Buttu.—p. 493.
Essential Incontinence of Urine: Pelvic Hypervagotonia. D. Paulian and I. Bistriceanu.—p. 496.
*Transscapular Extrapleural Thoracoplasty. M. Teodorescu.—p. 502.
Spino-Umbilical Reflex in Chronic Appendicitis. I. Stoia and M. Stanescu.—p. 506.
Intravenous Pyelography with Methiodal. S. Gavrilescu.—p. 508.

Transscapular Extrapleural Thoracoplasty.—Teodorescu asserts that extrapleural thoracoplasty as a surgical measure in the treatment of pulmonary tuberculosis merits the attention of clinicians and surgeons. The author uses the method of Sauerbruch, which he believes has advantages over other methods. The intervention is performed in the interscapulovertebral region with an incision preferably in the median line. The scapulovertebral muscles are cut parallel to the vertebral column, beginning at the lumbodorsal muscles. The costal transscapular approach makes the intervention more convenient so far as inundation, clearness and working space are concerned; and bleeding and pain are minimal. The author uses as local (regional) anesthesia a 1.5 per cent solution of procaine hydrochloride.

Sovetskaya Meditsina Vostochnoy Sibiri, Irkutsk

Jan.-Feb., 1931 (number 1), pp. 1-127. Partial Index

Scrofulosis in Buriatic Children. I. N. Perevodchikov.—p. 25.
Study on Fatigue Among Factory Workers at Irkutsk. T. A. Lapionova and S. S. Serebrenikov.—p. 31.
Professional Noise. S. S. Serebrenikov.—p. 36.
Epidemiology of Scarlet Fever at Irkutsk for Last Thirty-Four Years. A. Popov.—p. 38.
Epidemiology of Scarlet Fever at Irkutsk. N. M. Kononov.—p. 52.
*Experimental Study of Case of Herpes Recurrens. N. N. Klodnitskiy and A. N. Danilova.—p. 71.
*Associated Factors in Tabetic Osteo-Arthropathy. N. N. Toporkov. —p. 83.
Clinical Aspect of Syphilis of Liver. L. I. Gefter.—p. 91.
Chronic Paragenital Serpiginous Soft Chancre: Case. L. I. Yudovich and E. P. Malkovskaya.—p. 104.

Experimental Study of Case of Herpes Recurrens.—Klodnitskiy and Danilova discuss the literature on the subject of viruses and their place in microbic dissociation. The material for their experimental study was obtained from one of the authors who in 1924 became infected through contact with two patients with epidemic encephalitis. The disease took an abdominal course and did not demonstrate herpetic symptoms until 1926. At first the vesicles appeared twice a year and later four times a year. Nicolle in Paris (1928) studied the virus and came to the conclusion that the strain was related to the rabies virus, but this was not conclusive. The authors used rabbits, guinea-pigs, mice and marmots for experimental animals. Injections from the herpetic vesicles were made subdurally, into the cornea, into the parathyroids, intraperitoneally, intramuscularly, and into the ear, trachea, brain, and salivary glands. Material for inoculation consisted of the pustular material itself and its cultures in broth. The authors believe that no matter in what part of the body the virus may be it affects the skin and may be found in the peripheral blood. Inoculation of the cornea with herpetic peripheral blood leads to 16 per cent loss of weight, and inoculation subdurally leads to 20 per cent loss in weight. Virus material injected into the cornea or the brain of rabbits caused encephalitis and death. The brain of the infected animal inoculated into another animal again caused encephalitis. The authors conclude that their strain of herpes virus had a strong neurotropic power. Infection through the cornea in guinea-pigs was characterized by encephalitis, loss of weight and abdominal symptoms. The cutaneous manifestation of herpes is a tendency toward attenuation and may be used for experimentation and therapy. After cutivaccination, the virus is present in the peripheral blood. Corneal or subdural inoculation causes loss of weight and lethal encephalitis that can be transmitted from animal to animal.

Associated Factors in Tabetic Osteo-Arthropathy.—Toporkov asserts that arthropathy in tabes is not frequent but is very serious. There is no conclusive therapy. The pathogenesis may be attributed to a dystrophic tendency and syphilis of the joints. Among the associated factors, the author stresses trauma, especially in tabes. In this relation, disturbance of the osteo-articular process leads eventually to complete invalidism. Most workers recommend antisyphilitic therapy aimed at the active syphilitic process, which tends toward trophic disturbance of tissue. Early roentgen diagnosis of silent arthropathic processes in tabes and energetic antisyphilitic therapy together with ordinary preventive measures are important in treatment and prophylaxis. That trauma is an important factor is proved by the fact that persons doing physical labor most frequently develop arthropathies. The author recommends examination of those syphilitic persons who are engaged in work that may lead to trauma of the joints. In a review of the literature he mentions four workers who observed 1,149 instances of arthropathy and found 39.9 per cent in the knee joints, 20.2 per cent in the pelvis, 12.0 per cent in the shoulders and 5.7 per cent in the feet. Most of the complications are in the lower extremities and are most frequently the result of trauma. The author discusses the case history of a patient with arthropathy of the spine due to a combination of tabes and compression of the spine.

Finska Läkaresällskapets Handlingar, Helsingfors

73: 831-901 (Nov.) 1931

*Rheumatic Iritis and Weather. E. Enroth.—p. 831.
*Sensibility of Cornea in Trachoma. Erna Zitting.—p. 837.
*Effect of Roentgen Irradiation on Ability of Tumors to Store Iodine and Bismuth. Gösta Jansson.—p. 857.
Experiences in Myelography. E. Ruin.—p. 875.
*Glaucomatous Hemorrhagic Iritis with Thrombopenic Purpura: Case. S. Werner and E. Adlercreutz.—p. 883.

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Roentgen Irradiation and Ability of Tumors to Store Iodine.—Jansson's experiments, mainly on Jensen's rat sarcoma, show that more intensive irradiation, whether with a strong or a weak filter, decreases the ability of the tumor to store iodine, while its ability to store bismuth is increased by irradiation.

Glaucomatous Hemorrhagic Iritis with Thrombopenic Purpura.—The sudden hemorrhagic iritis with increased pressure in the case reported by Werner and Adlercreutz was resistant to energetic treatment continued for two months. At the end of that time a pronounced hemorrhagic diathesis with thrombopenia set in. Death occurred after two weeks. There was no hemorrhage from the mucous membrane of the mouth, and the thrombocyte count was 87,000. Acute leukemia, hemorrhagic aleukia and aplastic anemia were excluded. The relation between the hemorrhagic glaucomatous iritis and the thrombopenic purpura is not clear.

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THE POSTGRADUATE AND GRADUATE TEACHING OF RADIOLOGY *

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Radiology is still a comparatively new branch of medicine, but its rapid development during the last thirty-five years, and especially during the last ten years, is deservedly attracting widespread attention. Moreover, its relations to many other phases of medicine are increasing day by day. In several phases of medical practice, in fact, radiology has already become an indispensable factor. Such evolution has been so rapid that, although many of the better medical schools provide more or less substantial instruction for undergraduates, little effort has yet been made to organize and provide thorough postgraduate or graduate courses. In this respect America has allowed itself to fall behind several European countries. In England, France and Sweden, for instance, the teaching of radiology is well organized and has been placed on a higher plane than in any school in this country. This deficiency is now crying for correction.

Any consideration of postgraduate and graduate instruction in medical radiology must take into account a number of factors: the present status of the subject as it affects, and is affected by, other phases of medical practice; the existing plane of undergraduate teaching of radiology; the number of qualified teachers available, and the objects which an ideal system of instruction should seek to attain. It must be obvious that, without an ideal to strive for or a definite objective to attain, it would be difficult or impossible to construct a plan that could be expected to yield the desired result. In other words, the first essential is to know what is the desired result and to keep it clearly in mind. The main object of postgraduate instruction in radiology, it seems to me, should be to develop full-fledged specialists in this branch of medicine, masters of the subject, thoroughly equipped to practice the specialty, and worthy of public confidence. This, then, should be the ideal toward which we should strive. But before constructing a plan to achieve this result, it is important to inquire into the present status of radiologic practice. In a recent analysis I [1] have attempted to point out some of the undesirable conditions that characterize such practice at the present time, such as the comparatively low standards that countenance the reference of patients by their attending physicians to so-called laboratories operated on a commercial basis by unqualified laymen, the dependence of many physicians on interpretations of roentgenologic data by nonmedical technicians, the treatment of patients by technicians without supervision by medically trained therapeutic radiologists, and the dearth of teachers of academic caliber. These different factors are so closely interrelated that to analyze and set forth precisely the influence of each factor is not a simple task. Nor is such exact distinction necessary. It is quite enough to know that these factors collectively constitute a sort of vicious circle. The one point at which this circle can be most effectively broken is that which relates to postgraduate instruction, because the present lack of such instruction furnishes the best opportunity for constructive action. It is true that the break is rendered difficult by the relative paucity of teachers, but the number of teachers can be increased only by such a break.

Besides developing full-fledged specialists, however, the scheme of instruction should also include short courses in the different phases of diagnostic and therapeutic radiology. This would satisfy a widespread demand, would spread the knowledge of advanced methods, and would tend to raise the general level of radiologic practice.

A well considered scheme of instruction, therefore, should provide:

1. Short, strictly postgraduate, courses in different phases of diagnostic and therapeutic radiology for graduate physicians who may merely wish to keep informed on the value of various new methods or to prepare themselves to utilize one or another phase of radiology, and also for radiologists who may want to keep abreast of the newer technical developments and methods.
2. A comprehensive, graduate course of systematic and thorough instruction in every phase of radiology for physicians who desire to qualify as specialists.

The short courses should be open to any graduate physician, regardless of the character of his practice. This suggestion will no doubt be objected to by some, who may feel that to allow any physician to take such courses must result in encouraging physicians in general to conduct roentgenologic procedures or radiotherapy for themselves and in restricting the field of the radiologic specialist. This objection, I am convinced, is not strong. Although it must be conceded that the broad privilege of taking short courses would undoubtedly lead an increasing number of physicians to interest themselves in radiology and perhaps to employ it in their own work, I feel certain that, instead of limiting the field of the specialist, it would extend it. The more widespread the realization of the usefulness of different phases of radiology, the greater the likelihood that the real value of highly qualified specialists will receive the recognition it deserves. Certainly, it cannot be said that the short postgraduate courses in ophthalmology have lowered the level of ophthalmologic practice as a

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* From the Section on Therapeutic Radiology, Mayo Clinic.

* Read before the Annual Congress on Medical Education, Medical Licensure and Hospitals, Chicago, Feb. 16, 1932.

[1] Desjardins, A. U.: The Status of Radiology, J. A. M. A. **96**: 1749-1753 (May 23) 1931.

whole; on the contrary, it has led an increasing number of physicians to recognize the importance of high grade ophthalmology, and the status of this branch of medicine has risen as the number of qualified specialists has increased. To be sure, it would be fallacious to assume that this achievement has resulted from the provision of short postgraduate courses; the point is that such short courses do not appear to have acted as a deterring factor, and there are reasons for thinking that they have had an opposite effect. Therefore, the fear that short courses of instruction in radiology for graduate physicians may interfere with the general program of placing the postgraduate teaching and practice of radiology on a higher plane seems unwarranted.

Among the subjects in which short courses might well be provided are:

Physics of roentgen rays.
Physics of radium.
The quantitative and qualitative measurement of roentgen rays and radium.
Roentgenologic technic.
Roentgenologic interpretation.
Roentgenologic diagnosis of diseases of bones and joints.
Roentgenologic diagnosis of diseases of the respiratory tract.
Roentgenologic diagnosis of diseases of the gastro-intestinal tract.
Roentgenologic diagnosis of diseases of the urinary tract.
Roentgenologic localization of foreign bodies.
The newer methods of roentgenologic diagnosis.
The biologic principles of radiotherapy.
The technic of roentgen therapy.
The technic of radium therapy.

Physicians taking such courses should be entitled only to a certificate of attendance and should not be required to pass any examination, unless the number of short courses taken is sufficient to enable them to qualify as specialists. In this event, they should be allowed to take a comprehensive examination, and, if they succeed in passing it, they should be entitled to a certificate and to the title of specialist. The courses should be arranged so as to crowd as much information as possible in the time allowed and should consist of both didactic and laboratory exercises or practical work. The aim of the lectures should be to set forth principles and to explain their application, so that those who take such courses may be able to solve their own problems by analyzing the factors involved and applying fundamental laws. Neither didactic nor practical instruction alone can serve the purpose. Laboratory exercises should be chiefly in the form of demonstrations, because to expect the average short-course student to derive much information from being allowed to fuss and stew in a laboratory for two hours a day for six weeks would be likely to prove a delusion. Often it would only serve to waste the time of the student and of the instructor. In general, a well conducted demonstration would be much more effective. In certain courses, however, in which it is essential for the student to familiarize himself with technical procedures or with the operation of measuring or other instruments, individual practice under the supervision of the instructor is essential.

COMPREHENSIVE GRADUATE COURSE

The comprehensive course leading to a degree such as that of Master of Science in Radiology or Doctor of Radiology should be conceived along the broadest possible lines. It is difficult to see how anything like a thorough course of instruction can be compressed into less than three years. Any attempt to effect undue compression must necessarily result in sacrificing thoroughness and, therefore, quality.

To insure that candidates may be able to take full advantage of the course, they should be subjected to reasonably rigid requirements, as far as antecedent instruction or training is concerned. The privilege of registration should be restricted to graduates of class A schools and preference in selection should be given, or selection should be limited, to those who have had, as part of their premedical training, college courses in physics and biology or their equivalent. An internship of at least one year in a class A hospital should also be required as a preliminary to registration.

The first year of the graduate course should be devoted to anatomy, physiology and pathology and to the physical aspects of radiology. One half year of concentrated training in anatomy, physiology, pathologic anatomy (otherwise known as gross pathology) and microscopic pathology would provide the strongest possible foundation for both roentgenologic diagnosis and radiotherapy. A radiologist cannot possibly have too much knowledge of anatomy and pathology. Ability in roentgenologic interpretation depends in about equal measure on knowledge of anatomy and pathology, and these subjects are about equally important for roentgen and radium therapy. To meet the needs of roentgenologic diagnosis, instruction in anatomy should lay particular stress on landmarks and relations of special importance in roentgenology and on the developmental phases of bones. Physiology should be taught chiefly in the form of a review, but special attention should be given to the more significant radiologic considerations.

The second half of the first year should be given over to radiologic physics, instruction in which should include both didactic lectures and laboratory exercises. The lectures or conferences should be as practical as possible and should be planned so as to explain and demonstrate physical principles as they apply to different phases of radiology. As much as may be feasible, examples should be selected from material related to that subject, and demonstrations should be arranged in the same way. The object of the laboratory exercises should be to serve as additional demonstration of principles, to explain the construction and operation of apparatus, and to familiarize the student with physical methods and instruments for measuring electrical potential and resistance, the quality and quantity of roentgen rays, and all other measurable factors that enter into the scientific practice of radiology.

The second year should be fully taken up by diagnostic roentgenology. Not only should the students be taught how to interpret roentgenograms, but they should be required to spend a good part of their time in performing, under the guidance and supervision of qualified instructors, the numerous technical procedures incidental to the present-day practice of diagnostic roentgenology. To watch some one else and to do things oneself are two quite different things. The one may be a useful preliminary to the other, but in no way can the former be regarded as a substitute for the latter. One who has not become thoroughly familiar with every step of a procedure by actual experience can never be in a position to direct subordinates intelligently. By every possible means, therefore, students should be induced to regard themselves as working members of the department in which they are receiving instruction and should be made to feel some measure of responsibility for whatever work they may be engaged in. This is the only way by which any one can expect to become really proficient. Roentgenography and roentgenoscopy have become so important that familiarity with every phase of their utilization in the diagnosis of diseases of bones and joints, of the digestive, respiratory and urinary tracts, of the nervous system, and also for the recognition and localization of foreign bodies, requires a detailed knowledge of many methods and of the variations in technic by means of which maximal information can be elicited under different circumstances. To become proficient in every detail of roentgenologic diagnosis in one year does not allow any time for frivolity. The question is, is one year really sufficient? Certainly, it can be accomplished only by careful planning and correlation and by the utmost economy of time.

Perhaps the foregoing results can best be achieved by arranging for the students to concentrate their attention, for periods of two or three months, on the roentgenologic procedures involved in the diagnosis of lesions affecting each of the groups of structures or organs previously mentioned. However, a fixed schedule is out of the question, because considerable latitude must be allowed in adjusting the details of the scheme of instruction to the circumstances of the institution in which the course is given. Besides instruction and practical training in roentgenography and roentgenoscopy, the students should be taught the photographic and chemical aspects of roentgenography and the methods of protection required for the safe practice of radiology.

Throughout this part of the course it is desirable that contact with clinical medicine and surgery be maintained. In some institutions the diagnostic roentgenologist may be obliged to work with little knowledge of the clinical features of the cases examined. At best, this is to be regarded as an unfortunate necessity, but never should it be looked on as an ideal. On the contrary, the closer the relations between medical or surgical clinicians and the roentgenologist, and the more knowledge the latter may have concerning the cases he examines, the more valuable should be his opinion.

The third year should be given over to therapeutic radiology, including roentgen rays, radium and, if possible, ultraviolet radiation. The field of radiotherapy, once so restricted, is now rapidly extending, and every radiologist worthy of the name should receive as broad and as thorough training in the therapeutic as in the diagnostic aspect of this branch of medicine. The conspicuous and widespread lack of such training, and of the clinical and pathologic foundations on which it rests, are among the most glaring deficiencies of present-day American medicine. Owing to the general neglect of this phase of the subject, but chiefly because of the lack of qualified instructors, few institutions are now in position to undertake such teaching. If this deficiency is to be corrected, a beginning must be made. For a time it may even be necessary for two or more institutions to pool their facilities and personnel.

Students should be required to take an active part in the examination of patients, in outlining their treatment and in preparing patients for irradiation, as well as in the actual administration of the treatment. It should be quite feasible to arrange the work so that, without any transfer of responsibility from those on whom the professional and legal obligations actually devolve, the students may yet have an appreciable share in all phases of such treatment. Only through some such scheme can they be made to realize the significance of many details, careful consideration of which and attention to which spell the difference between superior and inferior treatment. Too often the medical side of radiotherapy is neglected and the physical aspects are overemphasized. Both should receive due consideration. Important as it is to know the quantity and quality of radiation most useful in dealing with different pathologic conditions, it is even more important to be able to recognize the disease at different stages, to ascertain the extent of the primary lesion and of secondary foci, to size up the general state of the patient, and to adjust the treatment accordingly. Needless to say, the instruction in therapeutic radiology must be delegated to instructors of broad medical and radiologic experience. It may be contended that the general clinical, pathologic, dermatologic, surgical, gynecologic and other aspects of radiotherapy should be presented by specialists in the respective branches. But considerable difficulty may be encountered in finding specialists who have had sufficient experience with the radiologic aspects of their subject to qualify them for the task. To mention another example, few pathologists, and only a slightly greater number of practicing radiologists, know much about the relative radiosensitiveness of different varieties of cells and tissues. To be sure, the subject is still comparatively new, but, unless a start is made, such knowledge as we possess will be slow to diffuse.

On the whole, the most feasible arrangement at the outset will probably be to delegate the general teaching of the subject to the most experienced and the best informed therapeutic radiologist available. He, in turn, should arrange to have those phases of the subject with which he is not sufficiently familiar presented by qualified specialists. The strictly radiologic teaching should be supplemented by lectures on related aspects of clinical medicine, surgery and dermatology. Here again the need of combined didactic and practical teaching must be emphasized. This can be accomplished by means of lectures, but another effective, supplementary method is that of conferences or seminars at which certain of the students present a general review of some phase of the subject, which is then discussed by the instructor and by the other students.

The scope of roentgen therapy is distinctly broader than that of radium therapy, in that a wider variety of cutaneous, inflammatory and neoplastic diseases are amenable to treatment with roentgen rays than with radium. It must not be inferred, however, that the former subject should be allowed a greater proportion of time than the latter. An approximately equal period should be allotted to the two subjects. The therapeutic use of radium involves physical, clinical and often surgical considerations, in which adequate knowledge, experience and judgment cannot be acquired hurriedly.

The program which I have ventured to outline would not be complete without the additional condition that, as part of his training, each graduate student should be required to undertake a piece of research on some phase of diagnostic or therapeutic radiology and to prepare a report or thesis based on such work. It is true that some, who may be brilliant in the practical aspects of radiology, may not shine as investigators. The value of the research requirement does not lie so much in the actual results obtained as in making the student realize the importance of careful work and in the discipline which may cause him to realize that, even after an extensive course of study, he does not know everything.

I am aware that such a sketchy outline may be unsatisfactory and that some would undoubtedly prefer a more detailed plan. I have deliberately avoided this, however, because the conditions at each institution, and the personnel and facilities available, vary so much that the details of any scheme of instruction must be worked out by those who are familiar with the requirements on the one hand and with the local conditions on the other.

THE TEACHING OF RADIOLOGY TO INTERNS *

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The average physician cannot boast of great familiarity with the conduct or interpretation of roentgen examinations, or of adequate comprehension of the possibilities of diagnostic aid to be obtained from x-ray studies. His contact with x-ray problems consists in the main of emergency cases in which fractures or dislocations are suspected, and occasional reference of cases to x-ray laboratories for a "picture" of the lungs, stomach or urinary tract. He has not appreciated that, in addition to skeletal diseases and injuries, roentgen studies may be applied with advantage to nearly all visceral disorders, including many diseases of the nervous system. He does not stop to realize that examination with the x-rays is much more complicated than the simple taking of a "picture": that it is really no more a simple laboratory procedure than an ophthalmic examination or a urinary tract examination or a gynecologic study, and that a clinical knowledge of the conditions entering into his problems is a necessary part of the preparation of the radiologist. The "picture" of the stomach turns out to comprise a careful fluoroscopic investigation supplemented by anywhere from three to a dozen or more roentgenograms in various positions and under various circumstances according to the individual case. The "picture" of the lungs proves to be much more involved, the patient requiring fluoroscopic study in the erect position at various angles, with films to record whatever may be questionable or of especial interest; and sometimes it is advisable to make a screen study of the patient in the horizontal, prone, supine or lateral position, and to record the results with the necessary films. All of which sounds, and in actuality is, much more complicated than the simple word "picture" would imply, and yet to the layman who hears the x-ray study spoken of as a "picture," the physician's use of this term only serves to strengthen his impression that a roentgen examination is nothing more than some sort of glorified photography.

The remedy lies in some measure in the widening of the horizon of the general practitioner in relation to x-ray matters by having the radiologists of the country enter into a campaign of education through staff meetings, county society and other medical meetings. To a certain degree, perhaps as rapidly as possible, this is being carried on at the present time; but the logical and most important step is to carry this education to the young graduates of medical schools while they are in their intern year.

Medical students receive a certain amount of instruction in radiology, mostly in connection with x-ray investigations made in relation to the various patients with whom they come in contact during their clerkships and clinics. In addition, most medical school curriculums now include required didactic courses in roentgenology, usually in the senior year, and in many there are well trained roentgenologists who carry on excellent systematic courses of lectures and demonstrations to the students during both the junior and the senior years. Many schools make it possible for their students during their senior year to serve a clerkship in the x-ray department. Thus, when the graduate of today comes to the hospital as intern he already possesses a good foundation for further elaboration of his knowledge of roentgenology.

Statistical data from 619 hospitals approved for interns indicate that more than 80 per cent offer instruction in x-ray work. In some, provision is made for the rotation of the interns to include a brief service in the roentgen department, and in some of the larger hospitals there is a special x-ray internship. In others, occasional lectures are arranged to be given by the members of the staff of the roentgen department so that the interns may have more or less systematic instruction in roentgen diagnostics and therapy. In most hospitals, however, observation leads me to believe that the x-ray instruction given interns is desultory and not under definite check. The idea seems to be that the intern may absorb his knowledge of radiology while making rounds with the attending physicians and surgeons. In small institutions this is perhaps a necessary procedure, but in hospitals where the services of a trained roentgenologist are available it would be well for the interns to get from him also his slant on the meaning of the roentgen examination. The attending staff has a duty and a privilege in collating the roentgen observations with the other clinical and laboratory aspects of each case; whereas the roentgenologist, no matter how familiar he may be with the clinical and laboratory observations in a case, must not read into his roentgenologic interpretation more than can be supported by the x-ray evidence. It is well for him to know as much as possible about each case, the more the better, but he should not put into writing as a part of the x-ray report any statement which cannot be substantiated by the x-ray evidence.

PROGRAM OF INSTRUCTION

It is evidently quite necessary, if interns are to be given x-ray instruction, to formulate a definite program which can be followed out. Let me consider some of the things I believe it essential for an intern to learn about the x-rays. Naturally, the extent to which this ideal can be carried out depends on the size of the hospital.

1. *The nature and origin of x-rays and of secondary radiation, and the physical and biologic laws that apply to them.* This may be accomplished by reading textbooks, and it may have been done by some of the interns, but a systematic review should be made of the subject. Only by appreciating the physical facts will the intern ever learn to take care of himself and his patients during roentgenologic investigations and therapy. He should be taught the necessity of constant protection by lead-rubber aprons and gloves; to conduct roentgen examinations with expedition; to realize that proper filters must be kept in place between the source of the rays and the patient, whether for therapy or for examination, and that that most inexorable of laws, the inverse square law, applies to all radiation (including

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* From the Northwestern University Medical School.

* Read before the Annual Congress on Medical Education, Medical Licensure and Hospitals, Chicago, Feb. 16, 1932.

radium and ultraviolet rays). He should learn that the patient becomes a potent source of secondary radiation against which protection must be provided.

2. *The scope of roentgen examinations.* In his daily work the intern learns the general applicability of the roentgen rays to diagnosis, but the refinements of x-ray diagnosis should be systematically brought to his attention by didactic work. There are conditions not encountered in daily work in which the average physician will not think of a roentgen examination; for instance, acute intestinal obstruction, subphrenic abscess, pulmonary and pleural abscesses, perirenal abscess, certain abdominal abscesses, the measurement of the size and the position of certain viscera such as the liver and spleen, and the application of opaque oils and other opaque mediums to the study of the sinuses and fistulas as well as certain organs into which such opaque oils may be introduced. The localization of foreign bodies is a field in which most physicians do not know (or else have forgotten) the value of the x-rays. Physicians with experience on the front during the war had brought home to them repeatedly the value of the x-rays in localizing foreign bodies of all kinds, special emphasis being placed on fluoroscopic methods; yet how few seem to remember at this short interval since the war the efficiency and the speed of the fluoroscopic methods of routine use in war hospitals during hostilities. Peace time studies have added nonopaque foreign bodies in the respiratory tract to the opaque foreign bodies detectable with the roentgen rays. Naturally the intern, even in his student days, became familiar with the scope of the roentgen study of the gastro-intestinal tract, the urinary tract, the lungs and bronchi, the heart and great vessels, and the skeletal injuries and diseases. It is important that in all autopsy and staff conference discussions the roentgen observations should be presented by the radiologic department and carefully correlated with the clinical and autopsy aspects of each case. It is a practice in one hospital, at least, to present at the autopsy room a roentgenogram of the chest, made post mortem, to bring further down to date the x-ray data on the thorax.

3. *Fluoroscopic control of the reduction of fractures and dislocations and in the removal of foreign bodies.* Some of the larger hospitals are equipped for biplane fluoroscopy for use during the setting of fractures and the reduction of dislocations, but the very accessibility of such apparatus may tend to relax one's vigilance against damage by the x-rays to the patient and staff. Every year new cases are brought to attention in which irreparable damage has resulted to physicians from injudicious fluoroscopy. When special apparatus is not provided for such work, improvisation can be made in the roentgen department or a portable x-ray instrument and a hand fluoroscope may be carried to the operating room, under which circumstances the dangers of damage by the x-rays to the staff is greatly increased, to say nothing of danger from possible explosion from unwise choice of anesthetic agent to use under such circumstances. These precautions are all the more important if it is sought to use the roentgen aid in the extraction of an opaque foreign body. Here again one seems to see very little effort to use the fluoroscopic aid so widely taught in military surgery. Time and again one sees surgeons attempting the removal of superficially located foreign bodies in the good light of the operating room when, by the aid of the fluoroscope and a proper technic of protection against surgical contamination and roentgen damage, the offending substance may be extracted with great saving of time and no danger from the x-rays.

4. *Roentgen interpretation.* To develop skill in reading roentgenograms and in translating the appearances made manifest by fluoroscopy there must be opportunity for observation of and participation in fluoroscopic and x-ray film examinations, and for sharing in the conference at which the roentgenologist puts together into the written report the x-ray evidence shown by films and screen. To make this of teaching value, it is important that the roentgen department be furnished with a statement of the problem in each case referred for examination. It is not enough to refer the patient merely for an examination of such and such part; the examination desired should be stated, but, most important of all, the problem should be stated clearly. The referring physician had some reason for sending the patient for examination in the roentgen department; what was that reason? A tentative diagnosis would be ideal, but practically it seems impossible to get the cooperation of staff members to that extent. It is possible to insist on knowing the question that was in the referring physician's mind when he wrote the requisition and he should take the time and trouble to state his problem briefly.

5. *Roentgen terminology.* Terminology is of importance in the instruction of interns. It is difficult to change the habits of a lifetime and, on the other hand, it is relatively easy to instruct young people just entering their practical experience. To a man who has all his life spoken of roentgen examinations as "having a picture taken," and who has been guilty of sending his patients into the x-ray department for an "x-ray picture of the gastro-intestinal tract," an "x-ray picture of the lungs," and of this, that and the other thing, it is useless to talk about terminology. But the younger men are susceptible to persuasion and rule in this matter, especially when reason is used in talking with them. There is a certain dignity which belongs to all branches of the medical profession, and it is well to maintain that dignity. The surgeon does not speak of making such and such a "gash" or "slash" to "dig out" the appendix; that would be exceedingly undignified. He makes such and such an "incision" to "resect" the appendix. One does not "dig out" the prostate through a low belly "slash"; he "enucleates" the prostatic tumor through a "suprapubic incision." Just so, in roentgen terminology it is possible with a little care to school oneself to dignified language and to speak of x-ray films, x-ray examination and x-ray study if one is determined that his tongue cannot negotiate the more cumbersome "roentgenogram" or "roentgen study." One of my dear friends protested that he could not curl his tongue around "roentgenogram," yet within two or three minutes he was talking about a nice case of urethral obstruction in which he performed a "ureteromeatotomy"! Proper terminology aids materially in the collection of fees that are necessary to carry on x-ray work adequately. The American Medical Association has published an acceptable list of radiologic terms.

6. *Therapy.* The field of roentgen therapy is so complicated that it is to be doubted whether more can be done in the way of instruction during the intern year than to teach the general principles of treatment, the selection of cases, the realization that it is possible to make accurate dosage, and the limitations of the method.

Circumstances will determine how far such a program can be carried out in the individual hospital. In large hospitals, with internships of from eighteen months to two years, it is quite reasonable that a portion of this time be given to the roentgenologic department, each intern spending a while in that department as a participating assistant. Such a stay should be for not less than two months, and three would be better. The practice of assigning an intern to the x-ray department instead of a place on a rotating service should be condemned; no fellow in the roentgen department should be accepted until after having served his regular internship, and preferably after a few years of general practice. Failure to observe this precaution results in unbalanced training, which soon becomes evident in the practical work of the fellow.

In some hospitals the interpretation is done at the same time during which the members of the attending staff are making their rounds, so that it is difficult for the interns to participate in the reading of the roentgen examination. In such cases it is feasible to arrange a certain hour at the close of the forenoon or at the end of the day for revision of some of the more interesting of the x-ray cases of the day. It is also possible for the staff to arrange that the roentgenologist shall give a series of systematic lectures and demonstrations covering the x-ray instruction deemed necessary.

Much good will have been accomplished if the intern on leaving the hospital can carry with him a thorough appreciation of the scope and limitations of the roentgen examination in various disease conditions, its value and dangers in the control of fracture and foreign body work, and its place with radium in the treatment of many benign lesions as well as in the management of malignant disease.

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TEACHING OF RADIOLOGY TO UNDERGRADUATE STUDENTS *

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Radiology occupies rather a unique position as a subject for teaching to undergraduate medical students. It is a new medical specialty. Its diagnostic and therapeutic applications have grown at a tremendous rate and have become unusually widespread. While it is more or less intimately concerned in every branch of medicine, its development has been left largely in the hands of a comparatively few medical men, assisted in a great measure by physicists and manufacturers of equipment. Its development and its position as a specialty have been taken largely for granted by the greater part of the medical profession. Comparatively few students or recent graduates expect to take it up as a specialty or even to practice it directly in a smaller way, although it must serve all of them. For these reasons, little earnest thought has been given to radiology from the standpoint of undergraduate teaching, aside from the desire and pride on the part of radiologists to further the interests of their specialty. The latter attitude is but natural, for, as Barclay[1] states, "when a teacher is placed in charge of a special department, it must be his aim and object to further its interests."

REASONS FOR TEACHING UNDERGRADUATES RADIOLOGY

While radiologic specialists are constantly urging their claims for teaching privileges, the question frequently arises no doubt in the minds of medical faculties as to why any extended instruction in radiology to undergraduates is necessary. This can be answered by numerous reasons, which, because of their multiplicity and complexity, require enumeration:

1. The intern and the comparatively inexperienced young physician should know something about a means of diagnosis and treatment which either must call on frequently for assistance. Perhaps this appeals to me more than it does to some of the younger generation because my student, intern and early medical experience was gained in the first years of roentgen diagnosis and treatment, when there was no teaching of any kind on the subject. Impressions of roentgenograms and the reasons for therapeutic actions and their effects were as vague as they possibly could be on any subject pertaining to medicine. When, as an intern, I was shown the roentgenogram of a chest, no mental impression whatever was made of the patient's condition because of an utter lack of knowledge of anatomy and pathology as they might be expressed by roentgenographic shadows and appearances. The intern of the present day, however, realizes something of the value of roentgenologic studies because he has been taught something about the subject. He has some understanding of normal and pathologic appearances when they are demonstrated to him. He even learns to interpret abnormalities for himself.

2. Today one seldom sees a clinical journal that does not contain important references to roentgen diagnosis or therapy. Must the intern or the young physician skip over these references without a proper understanding of them?

3. Roentgen diagnosis now is applicable to every branch or specialty in medicine. In surgery, every fracture and dislocation must be examined, not only because of the aid given to the surgeon and patient but also because of almost a legal requirement. The roentgenogram is the most satisfactory and safest means of diagnosing and studying bone diseases and tumors in most instances. Nearly all surgical gastro-intestinal lesions are diagnosed or confirmed by roentgenologic study. The detection or confirmation of a large number of urologic conditions depends on roentgenologic assistance, often aided by intravenous or retrograde urography. Diseases of the gallbladder, intracranial lesions, many intrathoracic conditions and a host of others require study by this method. In connection with internal medicine, the radiologist has to search for foci of infection in the teeth and sinuses. Practically all intrathoracic conditions require more or less roentgenologic study. The digestive tract and the gallbladder constitute a wide field for investigation. In addition, there are bone, joint, soft tissue and many other conditions for which examinations frequently must be made. The pediatrician frequently calls for assistance in examinations of the sinuses, mastoids, pharynx, chest and bones. The orthopedist would be lost without roentgenologic aid. The bronchoscopist could do but little without it. The laryngologist requires it constantly and the neurologist very frequently. Thus, *radiology is practically a specialty within specialties.*

4. The student should be taught the value of, and in many instances the absolute necessity for, roentgenologic diagnosis as well as its limitations, for he is

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* Read before the Annual Congress on Medical Education, Medical Licensure and Hospitals, Chicago, Feb. 16, 1932.

* From the Radiological Clinic of the Medical School of the University of Pennsylvania and the University Hospital, Philadelphia.

[1] Barclay, A. E.: The Dangers of Specialization in Medicine, the thirteenth Silvanus Thompson Memorial Lecture, Brit. J. Radiol. 4:60-82 (Feb.) 1931.

soon to become an intern. As such, he is in many instances the one to request roentgen examinations, until, perhaps, the radiologist has reason to mistrust his judgment and insists on a higher authority.

5. The student of today should be taught not to depend on roentgenologic aid at the expense of other and older diagnostic methods. He must learn to realize that such studies are expensive procedures for patients and institutions and should not be employed unnecessarily. On one occasion, an intern requested studies on a single patient in a ward which would have cost the institution over $70 had they been carried out. A large part of this general examination was found to be entirely unnecessary.

6. There is a tremendous amount of mediocre roentgenologic work being done today by untrained and inexperienced men, and much of it is practically valueless and even misleading. The student and, later, the intern should be taught to realize this, so that when they enter into practice they may be able to judge what is dependable and what is not. Nevertheless, one should not be too hasty in judgment of diagnostic ability on the basis of the appearance of roentgenograms, for they may have been made under unusual and difficult circumstances beyond control if poor, or, on the other hand, some men can produce excellent technical results without having the ability of correct interpretation.

7. To establish the fitness of the young practitioner for such judgment and understanding as have been specified requires that instruction of some kind should have been instituted during his student days, whereby he could have gained some knowledge of normal roentgenographic appearances, their variations within normal limits, and the modifications produced by pathologic processes. By the time of his graduation and the beginning of his internship he should be able to understand the principles of interpretation of living pathologic conditions in roentgenologic terms. The internship would then be the time for him to gain what is needed in the way of experience.

8. Roentgenology is largely but not entirely in the hands of the medical profession today. Whether it will eventually fall more and more into the hands of commercial enterprises outside of institutions depends almost entirely on the proper teaching of the younger members of the profession of the interrelation of radiology with the other branches or specialties of medicine. There is a growing tendency, apparently the world over, in the direction of commercialism, even with the vicious habit of fee splitting. Lack of oversight in this particular line of work only serves to encourage similar proclivities in others. Haenisch[2] of Hamburg, in a recent memorial address, when commenting on the misfortunes arising from the rapid expansion of radiology when it lacked the cooperation of other specialties, made the following statement:

> The harm, however, which resulted from a too rapid expansion of the art and the consequent faulty, insufficiently prepared training was not the worst. This could, if the will were present, be minimized or even eliminated. Much more disastrous was the fact that the incompetent and dishonest elements grasped this specialty. These, in some instances, were unscrupulous physicians who were guided merely by the expected pecuniary advantages and who, unhampered by clinical and roentgenological knowledge and experience, "sold x-ray pictures," paying the referring physician rebates or commissions. . . . In other instances laymen, with or without connivance of dishonest physicians, saw in the purchase of x-ray apparatus a get rich quick scheme at the expense of innocent patients.

These practices are all too common, and their elimination must be a cooperative process, and the warning and the education cannot come too early.

9. Radiation therapy has a large share of importance in the treatment of neoplastic disease and many other pathologic conditions. Today, operative surgery, electrothermic procedures and the use of roentgen rays and radium are the only approved methods of dealing with cancer, which is one of the most important conditions with which we have to deal in these modern medical times, because it is second in mortality rate among adult diseases. The greatest efforts are being made by interested medical bodies to teach the public and, still more important, the medical profession, the importance of early diagnosis and proper treatment. It is generally agreed by these bodies that the proper time to *begin* this instruction is in the undergraduate medical schools. The teaching is preferably to be carried out by cancer clinic groups, but in lieu of this it must emanate largely from the surgical, medical and radiologic groups. Many of the unethical and unscientific methods of treating cancer could not flourish to the extent to which they do today did they not receive encouragement from men who have not been properly taught. Irradiation is a part of the therapeutic armamentarium of the dermatologist, and the student should be able to understand why it is used on the basis of biologic effects.

10. The dangers from excessive x-ray exposure should be understood, especially as they may be experienced in roentgenography and fluoroscopy for various purposes. Radiologists are frequently embarassed by the lack of knowledge of these dangers on the part of the medical profession in general.

METHODS OF TEACHING

The reasons so far enumerated would seem to constitute ample justification for instruction in radiology during the undergraduate and intern periods. The latter is an ideal opportunity, but this aspect of the teaching problem will not be considered here. Fortunately, intern instruction is prescribed by medical boards in many states. My only suggestion in this connection is an insistence that the groundwork should begin during the undergraduate period. The next arguments are over the time, the place and the method. Barclay states: "It is quite true that the overburdening and censequent extension of the medical curriculum is due to the increase in specialization. . . . The student of today has a far greater load of learning to cram into his head than he had a few years back, far more than he can ever hope to remember." The method of general didactic class instruction in radiology as carried out in most institutions in the past has been a failure in many respects. It has certainly not accomplished the desired results, and the only service it fulfils is to give the class as a whole some idea of the scope of radiology, and this is not sufficient compensation for the time and effort. Didactic teaching by lectures to hitherto untaught students means in part the showing of series after series of roentgenograms or lantern slides representing pathologic conditions which the student sees with little or no understanding of their import. Even were he shown the normal first, he cannot correlate that appearance with the structures of the human body represented because he has never been taught to do so. The futility is realized when the teacher reads examination papers or asks even the most practical questions at the end of the period. A few exceptional students may have grasped the subject, but the large majority have not. Didactic lectures are better adapted to graduate students who have received sufficient ground work in the subject to enable them to absorb and assimilate that kind of instruction. Didactic teaching of radiology had its inception largely in the fact that no textbooks were procurable on the subject, whereas this method has gradually declined in other specialties as suitable collateral textbooks have become available.

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[2] Haenisch, G. F.: Roentgenology as a Specialty, the Caldwell Lecture, Am. J. Roentgenol. **26**: 821-833 (Dec.) 1931.

Human psychology requires that the reasons for certain results must be explained if these results are to be understood and are to make any permanent impressions on memory. Hence, if the student knows why and how roentgenographic and fluoroscopic appearances are brought about or biologic effects are produced, his mind will be more receptive in the way of interpretation of shadows of the body structures and the indications for treatment by irradiation and the results obtained thereby. Therefore, in teaching radiology it is necessary to preface the practical aspect of the subject by a short course of instruction in physics. This must be didactic, but it should be made as elementary as possible and, at the same time, interesting. It should have been taught as a premedical subject, but this seems seldom to have been done, or, at least, not in a manner capable of impressing the students in a way a teacher of radiology would desire. The most appropriate time for it, or, at least, to review the necessary part of the subject of physics, if it must be included in the undergraduate medical curriculum, would seem to be during the first year. Then there is more time for it and it can precede any practical teaching. Surely the medical practitioner should know something about the physics pertaining to x-rays and radium and the physical problems involved in their application. It need be but a small percentage of what the radiologist must know and even make use of every day. The physician should be able to talk intelligently with his patients about what he orders for them, if nothing more. How many physicians know just why irradiation is used in cancer or the difference between radium and its emanation or the similarity in effects of roentgen rays and radium? The utter lack of knowledge by physicians of the most elementary facts concerning radiology is often ludicrous and, at times, even embarrassing to the radiologist. Their utter ignorance of nomenclature is all too apparent to editors of journals. The teaching of all the physics a student requires should take but a few hours.

In the teaching of radiology, all selfish motives of the radiologist should be excluded and he should formulate his plans in such a manner that the instruction may aid that of other subjects rather than take time away from them. Barclay says: "In teaching the radiological aspect of anatomy and physiology to men . . . I find that nearly all of them have forgotten these subjects to an astonishing extent. Surely there must be something radically wrong that this should be the case. I believe the trouble lies in the fact that these have become specialist subjects, taught by specialists, in departments that are separated from those in which the practice of medicine goes on." If this is true, as I believe it to be, at least to a considerable extent, is it not possible that the teaching of radiology might serve as a liaison between the clinical and the preclinical branches? As a matter of fact, such a purpose would seem to be a direct outcome of many proposed modern methods of teaching radiology.

When the internist presents a didactic or clinical lecture to his students, the latter have been prepared in anatomy, physiology, pathology, materia medica, applied therapeutics and physical diagnosis for a better understanding of the clinical subject under discussion. This progression of teaching has been worked out through long years of experience. Somewhat similar methods of progression would seem to be applicable to the teaching of radiology. Instead of a curriculum which prescribes a course consisting of a series of didactic lectures on the general subject, suppose we substitute one in which the roentgenologic aspect of anatomy, physiology and pathology in the living subject is considered in connection with the teaching of those branches and, later on, with the diagnosis of living pathology in the clinical branches.

One of the greatest misfortunes of the early radiologists was their enforced neglect of the study of the normal. When they started their work they were obliged to delve immediately into the abnormal without an adequate knowledge of what was normal. Fortunately this has been realized and has been corrected to a great extent, but not entirely. Inadequately trained individuals are often prone to interpret normal variations as evidences of disease because of their lack of knowledge of roentgenologic anatomy, physiology and pathology. One of the most flagrant examples of this was the one time popular peribronchial tuberculosis. Unfortunately, too many of us were culpable in this error. Unfortunately, the assertions of insufficiently trained radiologists have been accepted by unsuspecting clinicians who did not realize the absolute necessity for a proper anatomic and pathologic knowledge in roentgenographic interpretation. As a result, men by the wholesale were kept out or put out of the military services or were granted undeserved compensation because of alleged tuberculosis without any true pathologic basis in roentgenograms. The radiologists of the future must be properly trained on the basis of our experiences of the past. Why should not the proper form of instruction be given, though on a much smaller scale, of course, to the physicians who must, in the end, be the real judges of the fitness of radiologists when the health of their patients is at stake?

RELATION TO OTHER BRANCHES

Anatomy, one of the first basic branches, is a study of the normal. It is not a subject to be "crammed" and all too soon forgotten. Whether it is covered during the first year or, better, during the first two years, that is the appropriate time for demonstrations of normal living anatomy as depicted on roentgenograms or by fluoroscope. This could be done all at one time, but preferably, as each part of the body is taught, the normal roentgenographic appearances could be demonstrated. This would include the skeleton, with adult appearances, and also a short demonstration of epiphyseal development, with an explanation of what the roentgenographic appearances mean at different ages. I never knew just what an epiphyseal separation really was until I saw it demonstrated roentgenographically in intern days. The relations of the bones at the various joints and in the spine should be described anatomically and then roentgenographically. The student seems utterly at sea when shown roentgenograms of sinusitis, mastoiditis, pituitary tumors and the pathologic conditions demonstrated by ventriculograms and encephalograms. Surely, when the student is taught the anatomy of the head and brain he could be made to understand the roentgenographic appearances of the paranasal sinuses, mastoid cells, sella turcica and cerebral ventricles. I always considered the latter and the circulation of the cerebrospinal fluid things to be learned and then forgotten until the advent of ventriculography and encephalography. Surely, typical normal encephalograms and ventriculograms could be advantageously used for demonstration purposes when these structures are considered anatomically. The entire digestive tract could be demonstrated roentgenologically as the anatomy instruction proceeds. The student should be taught just how the radiologist sees it as a muscular tube with potential lumen when empty and with invisible walls, but only as a lumen shadow when filled with opaque contents. Later on he will be better able to understand how pathologic conditions will affect this lumen shadow. The kidneys, ureters and bladder can be demonstrated by normal urograms after retrograde or intravenous injections of opaque substances. Normal gallbladder demonstrations will be in order, with a few facts explaining the method of filling by the dye, although this would come more under physiology. In connection with the thoracic contents, the heart and vessel shadows should be demonstrated. Diaphragmatic excursion and cardiac pulsation should be reserved for section fluoroscopy. Group demonstrations would always be desirable for all this teaching, especially to permit of questions being asked by the students, but, if not feasible, much improvement in the present teaching plan could be made possible even by the usual class demonstrations of the various parts as the anatomic instruction proceeds. In all these demonstrations the student will be better able to understand why he sees the shadows of the structures shown if he has just received his preliminary short course in physics. Needless to state, these anatomic demonstrations should precede any attempt to teach roentgenographic pathology. All this anatomic teaching should be carried out in the medical department.

The course in physiology is an important teaching opportunity for roentgenology. Many of the important and really practical physiologic facts have been determined by fluoroscopic and roentgenographic observations, especially in connection with the digestive and urinary tracts. A number of the older beliefs have been entirely changed, and yet it is surprising how slow physiologists have been in appropriating this means of gaining knowledge, and it is inconceivable how known and recognized roentgenologic discoveries have failed to appear in textbooks. Barclay calls attention to the persistence of the Alexis St. Martin observations in modern print when they are manifestly absurd in the light of our present knowledge of gastric motility. How many physiologists teach that the stomach cannot empty properly when the individual lies on his left side; that peristalsis is a mixing mechanism in the stomach but largely propulsive in the intestine; that it and general gastric tonicity together are responsible for motility; that the shape and position of the stomach depend on the build of the individual, tonicity and the amount of contents; that there are such conditions as gastric compensation and decompensation; that pyloric spasm is induced by heavy exercise after a meal, mental fatigue and headache, and that most or all of these phenomena can be demonstrated easily by the fluoroscope? Students seldom know the differences in motility of the upper and lower small intestine and of the mass type of peristaltic phenomena of the colon, and yet these are all practical facts. Several men have followed Cannon in this line of investigation, but many have not. During recent studies of the normal swallowing act I have been surprised at the inaccuracies of physiologic statements concerning this mechanism or the lack of them. Barclay[3] has been struck by similar observations. It is almost inconceivable how the radiologist could have progressed as he has without the help of the physiologist, but it is conceivable that progress could have been more rapid with the physiologist's cooperation in the early days. It is quite easy to demonstrate how coarse foods remain much longer in the stomach than semiliquid suspensions of finer food particles. This is an example of information that would be of value in connection with later clinical teaching. Demonstrations of barium enemas would be most instructive even if made but once to each student. The pulsations of the heart and vessels, the normal movements of the diaphragm domes and the costal movements with respiration would be so spectacular as to be easily remembered by the student. Naturally, all such demonstrations could be witnessed by only small groups of students at a time. The dangers of exposure should be considered carefully as they apply to both observers and subject, and all such demonstrations should be under the direction of the department of radiology.

Pathology is the next branch by which the student should be helped toward an understanding of the practical aspect of roentgenology. Any teaching along this line should follow that of the normal, as already described. Pathologic anatomy in conjunction with roentgenology should be taught first, from the standpoint of the manner in which the disease affects the structure directly and grossly, and, secondly, as it alters function, because roentgenology is essentially a study of pathology in the living subject and thus differs from morbid anatomy as it is usually understood. The student should learn the actual gross and microscopic pathology first and then be taught to apply that knowledge to roentgenographic and even fluoroscopic appearances, just as the trained roentgenologist has to do every time he attempts to interpret evidences of disease in his roentgenograms or by roentgenoscope. The later didactic course in radiology will serve to show that when two or more pathologic processes present similar or indistinguishable appearances the clinical aspect of the case at hand, that is, history and clinical observations, must be carefully considered in the rendering of a correct interpretation by the process of exclusion. It is probable that, when the student has become familiar with normal roentgenographic appearances, typical roentgenograms of pathologic conditions will serve the pathologist well for demonstration purposes, not only when teaching from gross specimens, but also in general didactic instruction in various pathologic conditions. Needless to say, a normal roentgenogram of the structure should always accompany that of the pathologic condition under discussion, as, for example, cancer or ulcer of the stomach, intestinal neoplasms, bone tumors, aneurysms, heart conditions and many other intrathoracic lesions. It would seem almost if not quite as important to teach roentgen appearances in pathology as it is the histologic pictures of the processes. The roentgenograms of the patient should always be on display in the autopsy room, especially when students are present.

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[3] Barclay, A. E.: The Normal Mechanism of Swallowing, Proc. Staff Meet., Mayo Clin. 5:251-257 (Sept. 10) 1930; Brit. J. Radiol. 3:534-546 (Dec.) 1930.

PLACE IN CURRICULUM

The question naturally arises as to how all this instruction is to be carried out in connection with the preclinical branches, and especially in a minimum of time in an already overcrowded curriculum. The time factor in the problem may be disposed of first. All the demonstrations mentioned would be of comparatively short duration and form really a part of the teaching of the branch in which they are included. Many of them would lead to a better understanding of the subject at hand, especially from the practical point of view. I believe that the results obtained would amply pay for any extra time consumed.

It would seem preferable for all this preclinical as well as subsequent instruction to be under the direction of the professor of radiology, and for the teaching or demonstrations in each branch to be arranged through agreeable cooperation with the professor in each. There could be one fully equipped roentgenologic department in the medical school, with a well trained technician in charge who could handle all demonstrations and also take charge of all experimental work, as in research surgery, physiology, anatomy, pharmacology and other branches requiring it. This technician would not be a teacher. There are two ways in which roentgenologic teaching could be carried out. The first would be directly by a representative of the department of radiology. The radiologic staff in a teaching institution and hospital must, of necessity, in these days, be a large one. There must be a professor at the head and at least one or two associates. The assistants are frequently two to three year fellowship men, who are to become the trained radiologists of the future. They usually have minor faculty appointments. Technicians must look after all the details of purely technical work. One or more of the associates or fellowship men could be appointed to look after all the details of the instruction in the preclinical branches. The other plan would be to place this instruction in the hands of trained and competent members of the staffs of the branches, but with the department of radiology having a cooperative oversight. A combination of the two plans might be found advantageous. Decentralization of radiology is usually not a successful venture in the long run. It is a duplication of effort and is expensive and is not conducive to the best interests of teaching in general. It leads to a one track mind, whether applied to anatomy, physiology or clinical subspecialties, and fails to preserve the active spirit of cooperation so essential to the perfect teaching machine. The trained and experienced general radiologist is in a better position to see how the teaching in connection with all the branches can be best correlated. Clinical radiology is not laboratory work as we usually understand it. The trained radiologist must have a far wider vision than any laboratory chief can possible have.

In the third year, the student should be taught to correlate his knowledge of anatomy, physiology and pathology in a clinical application. The instruction should also be in the nature of a review, which intensifies the mental impression that may have been made previously. After such preclinical teaching as has been outlined there should be a striking difference in the student's receptivity to the clinical application of roentgenology compared to that which is possible when the attempt is made to teach him pathologic roentgenology only at this time, and without any preliminary introduction. The third year instruction under the radiologic staff, who can best correlate previous, present and future teaching, should cover a period of from sixteen to eighteen weeks during the last half of the year, with a weekly demonstration lecture. Each one should be elementary and based only on typical pathologic cases or examples. All exceptional and confusing cases should be absolutely excluded, and as few illustrative ones used as possible. Continuous didactic lectures illustrated by numerous films or slides shown in rapid succession make but little mental impression on the student, who is still very much a novice. An ideal way would be to divide the class into small sections for demonstration purposes, with each member of the staff teaching a small group simultaneously. Few institutions are equipped to do this, however. While actual didactic lectures should be avoided as much as possible, a few of them are necessary, especially in connection with radiation therapy, which is preferably a fourth year subject, however.

In the fourth year, roentgenology and clinical medicine and surgery and the special branches should be still further correlated. The plan we have followed for a number of years has worked out very satisfactorily. A class section of about twenty students spends an hour a week for six to eight weeks in a medical roentgenologic conference in which the director or professor of radiology is the leader and with the medical staff in attendance. Individual cases with which the students are familiar are discussed from the standpoint of history and clinical observations by the medical staff. The roentgenograms are then demonstrated and the roentgenologic deductions presented. The students are requested from time to time to attempt roentgenographic interpretations and are urged to ask questions.

Similar conferences are held weekly on surgical cases, with the surgical staff in attendance. After the roentgenologic deductions have been made, the surgeon in charge of the case in question briefly reviews the operation and gives the operative observations. These conferences last throughout the fourth year, so that each student has from twelve to sixteen hours of instruction. A similar plan is carried out with the pediatric staff, although student attendance is optional.

In addition to this, clinical medicine and surgery, and even some of the other specialties, should be taught with the use of roentgenologic data from roentgenograms as a part of the clinical picture of each case under discussion. Probably the subject of fractures is universally taught in this manner. The student will have a much better understanding of what the roentgenograms are intended to convey if he has had such preliminary training as has been outlined. In more or less didactic teaching of clinical subjects, roentgenograms of typical cases might well be shown, with normal roentgenograms for comparison, as a part of the clinical picture of each disease.

As has been previously stated, the preferable method of teaching radiation therapy would be through the agency of a cancer clinic group. The student should be taught unbiased views in regard to the indications and limitations of radium, roentgen rays, surgery and electrothermic methods. He then understands the necessity for early diagnosis and is prepared to go out and choose between accepted and unethical and unscientific methods of treatment.

The foregoing recommendations prescribe what would seem to be an ideal method of teaching radiology to undergraduate medical students and its correlation in a practical way with preclinical and clinical specialties. They are not entirely personal views but include also the ideas and even the practices of many teachers of radiology. They are offered for the purpose of general consideration with the hope that they may assist in the betterment of at least a small part of the medical curriculum.

CHRONIC INTERMITTENT DUODENAL OBSTRUCTION *

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Chronic intermittent duodenal obstruction or ileus has attracted increasing attention in recent years and is generally being accepted as a clinical entity. There are still a few who hold that it is not a clinical entity but a radiographic sign caused by and associated with various intra-abdominal lesions. However, most competent observers in this field have come to consider it as a distinct clinical condition. Various descriptive terms have been applied to it, such as arteriomesenteric occlusion, congenital fixation of the duodenum, stenosis of the duodenum, megaduodenum, chronic duodenal ileus or stasis and chronic intermittent duodenal obstruction.

There are several causes of the condition. But in this discussion we shall confine ourselves to the two that are the most frequent and important. First, there is the group of cases due to peritoneal adhesions or bands, congenital or inflammatory, fixing the first and second parts of the duodenum. Secondly, there is the group of cases due to intermittent obstruction of the third part of the duodenum. This is caused by pressure of the mesenteric pedicle with its contained blood vessels or by the ligament of Treitz on the duodenum or by a very sharp occlusive angle at the duodenojejunal flexure. In spite of the growing literature on the subject, these conditions are not yet generally appreciated or recognized. Their importance is realized when it is understood that not a few of the vague and indefinite chronic disturbances of the gastro-intestinal tract are assignable to them.

The clinical part of this report is based on a study by one of us (H. F. S.), of forty-six cases of chronic intermittent duodenal obstruction. Only cases that have been thoroughly studied and followed for a sufficient length of time to reveal something of their subsequent clinical course have been included. The period of observation has varied from six months to eight years. While the group is not large, it seems adequate to serve as a basis for the discussion of our subject.

RESULTS OF OBSERVATIONS

Incidence.—The occurrence of chronic intermittent duodenal obstruction has been reported in patients as young as 3 years and as old as 68. Our youngest patient was 11 years of age and the oldest, 59. Most of the patients (thirty-four) were between the ages of 25 and 35. There were four times as many females (thirty-seven) as males (nine). In this series there were fourteen cases of obstruction at or near the duodenojejunal angle and thirty-two in which the obstruction was in the first half of the duodenum. This division is somewhat arbitrary, as there were at least eight instances in which partial obstruction seemed to be present in both parts of the duodenum.

Symptomatology.—The symptoms of this condition are extremely variable, vague and noncharacteristic especially in the milder forms. The most common symptom in this series was a feeling of epigastric fulness and flatulence, especially after meals. This was also Wilkie's [1] experience. Several of the patients had had digestive disturbances such as constipation, vomiting and "bilious attacks" from early childhood. Others did not show symptoms until early adult or middle life. In the latter group, trouble frequently followed some preceding debilitating illness, such as grip or a marked loss in weight or a period of being generally "below par." The explanation of this is not clear.

Pain.—Pain of some degree was present in eighteen cases (40 per cent). Usually it was in the epigastric region; at times it was more in the right epigastrium (in patients with adhesive bands about the first part of the duodenum). In those patients with obstruction at the duodenojejunal angle, it seemed to be more in the left epigastrium. It varied from mild discomfort or distress to sharp and, at times, severe pain. In some cases, it came immediately after eating; in some, from one to three hours after meals, as in peptic ulcer, and in others it was almost continuous. The feeling of fulness and flatulence was often present with the pain. Eructations of gas were present in most patients. Partial or complete relief was obtained by sodium bicarbonate, belching, an enema, or by assuming the knee-chest position. Several patients had learned the method of securing relief by the use of the knee-chest position. Usually the pain disappeared when the stomach was empty. The distress or pain experienced by these patients frequently followed excessive fatigue, nervous or emotional strain, coarse food or large meals.

Vomiting.—Nausea and vomiting were outstanding symptoms, occurring in nearly 50 per cent (twenty-two) of the cases. Many patients complained of troublesome nausea and persistent anorexia that seriously interfered with their gaining weight. Others suffered with periodic attacks of vomiting usually associated with varying degrees of headache. These attacks were usually described by the patients as "bilious headaches" and not a few stated that they began in early childhood. In a few patients the vomiting lasted from twenty-four to forty-eight hours, and the vomitus in these cases almost invariably contained bile. The headaches in some instances were of the typical migraine type, but in only a few cases was there a clear-cut history of the familial feature so common in migraine. The six-hour gastric retention discovered by roentgen examination in some patients undoubtedly played an important rôle in causing anorexia, nausea and vomiting. In many patients, it would seem, there are disturbances in intestinal peristalsis or the intestinal gradient as described by Alvarez.

Constipation, often quite obstinate, was present in most cases, though in a few (six) constipation alternated with diarrhea. About one half of the patients had lost varying amounts of weight. In some cases the symptoms were continuous; in others they occurred in attacks of varying duration with remissions of comparatively good health lasting a few weeks, months or even years.

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* Read before the Hartford Medical Society, Hartford, Conn., Nov. 17, 1930.

[1] Wilkie, D. P. D.: Chronic Duodenal Ileus, Am. J. M. Sc. **173**: 643 (May) 1927.

Toxic Symptoms.—Many of the patients presented one or more so-called toxic symptoms. Conspicuous among these were headache, severe migraine, excessive fatigue, lassitude, mental depression, insomnia, nervousness, emotional instability and poor concentration. The mechanism producing these symptoms is far from clear, though various theories about toxic duodenal contents have been advanced. These nervous, functional or toxic symptoms frequently so completely dominate the clinical picture that the condition is considered to be a gastro-intestinal neurosis. As a consequence, and especially if no roentgen investigation is made by a competent observer who appreciates these conditions, the real diagnosis may be entirely overlooked. Such cases are then diagnosed as autointoxication, nervous indigestion or neurasthenia. There was no clear-cut difference between the symptoms of obstruction occurring in the first half of the duodenum and those present when the obstruction was at the duodenojejunal angle. In general, however, I received the impression that the pain or distress was more frequent on the left side; that it was apt to be more severe and that vomiting, when present, was more frequent and pronounced in the cases with duodenojejunal obstruction. Appreciable six-hour gastric retention, as shown by roentgen examination, was more frequent in the patients having obstruction in the first half of the duodenum. Consequently, as one would expect, a higher percentage of patients were operated on in this group.

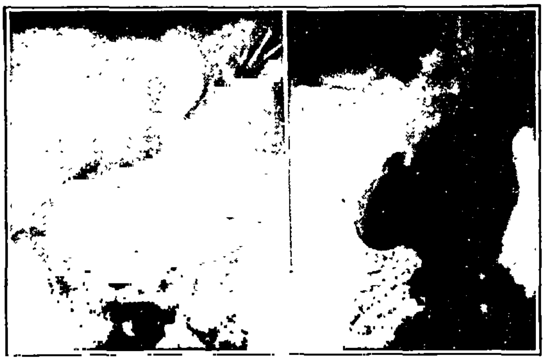

Fig. 1.—Small duodenum due to periduodenal bands.

Physical Examination.—This is important chiefly to rule out other intra-abdominal lesions. Most of the patients are of the asthenic type with the narrow costal angle and broad pelvis usually found in visceroptosis. All of the patients with obstruction at the duodenojejunal angle had this habitus. But seven patients with obstruction in the first half of the duodenum had a normal habitus. The majority of patients had low blood pressure, poor muscular tone, hyperactive reflexes and signs of vasomotor instability. More than half of the patients had diffuse epigastric tenderness; in some it was more on the right side, in others more on the left.

Laboratory Investigation.—Gastric analysis was carried out in thirty cases but showed nothing characteristic. Hypo-acidity, normal acidity and hyperacidity were present in nearly equal proportions. Blood was not found in the stools, though an excess of mucus was frequently present. Some of the patients had a mild secondary anemia, and in four it was marked. The basal metabolic rate was increased in two patients and appreciably low in three.

Roentgen Observations (H. M. I.).—The roentgen observations usually presented are characteristic in appearance but may at times be difficult to determine. In the first group, in which bands are present about the first and second parts of the duodenum, one finds that the duodenum may be markedly contracted in size in comparison to what one would expect to find from the size of the stomach (fig. 1); or it may be larger than the normal (fig. 2). Again, the duodenum may be deformed, presenting an appearance which is more or less analogous to that of ulcer, but the deformity is not constant as in ulcer and varies from time to time in various positions (fig. 3). The upper part of the descending limb may be definitely fixed and the part adjacent to the liver may have a flattened appearance. Normally there is a curve at the junction of the first and second parts of the duodenum, but when a certain type of band is present the curve is destroyed and the duodenum presents a horizontal line rather than a curve (figs. 4 and 5). A commonly observed phenomenon is a fixation of the dependent limb of the duodenum to the liver at a certain point, producing a definite angulation (fig. 6). These various phenomena may cause sufficient atresia of the duodenum to produce eventually a slowly emptying stomach. In an obstruction at the angle of Treitz the appearance is quite characteristic (figs. 7 and 8). The angle is usually shifted to the right of its normal position, so that it lies either over the body of the third lumbar vertebra or even to the right of it. The dependent duodenum is usually enlarged especially in its transverse diameter, and the valvulae conniventes are frequently absent. The duodenum is not able to empty itself completely and there is more or less reverse peristalsis with considerable writhing and twisting. These phenomena are frequently observed in a normal duodenum and to be of any diagnostic significance the phenomena must be observed after digestion is well established. The motility of the stomach is frequently seriously interfered with as it is not uncommon to see retention.

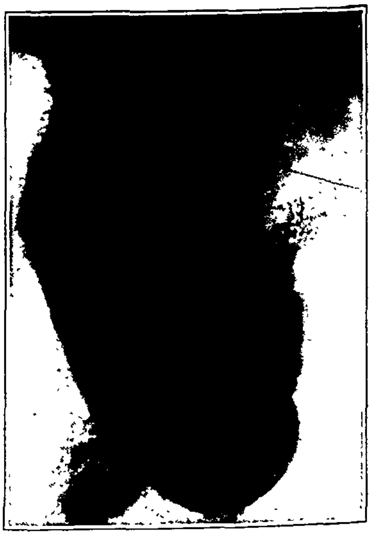

Fig. 2.—Elongation of duodenum due to bands at its extreme apex.

Associated Lesions.—Duodenal ulcer was present in three cases of this series, and an operation was performed in two. Four patients had cholecystitis (two with gallstones). All were operated on. More than half of the patients who came to operation for intermittent duodenal obstruction had had their appendixes removed when we first saw them. In none of these had the symptoms improved following the removal of the appendix. Niles[2] has already pointed out the frequency of the removal of the appendix in patients with duodenal obstruction.

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[2] Niles, W. L.: Congenital Fixation of Duodenum, Am. J. M. Sc. **169**: 328 (March) 1925.

REPORT OF CASES

CASE 1.—*Intermittent obstruction at the duodenojejunal angle (angle of Treitz).* A single woman, aged 50, had complained of indigestion, nervousness and exhaustion for seventeen years. For three years she had suffered with distress in the left side of the epigastrium, flatulence and belching from one to three hours after meals. During her worst attacks she secured some relief following an enema or by assuming the knee-chest position. She was usually severely constipated and had periods of headache, exhaustion and mental depression. There was slight tenderness in the left side of the epigastrium but the physical examination was otherwise essentially negative. A cholecystogram showed normal conditions. But the gastro-intestinal roentgen examination showed signs of obstruction at the duodenojejunal angle (angle of Treitz) characterized by inability of the duodenum to empty completely, reverse peristalsis, and writhing and twisting of the duodenum. After following a regimen of special diet, rest after meals and postural treatment, and wearing an abdominal belt for a suitable time, the patient was greatly improved and was able to resume her occupation as a nurse.

CASE 2.—*Marked fixation of the first and second parts of the duodenum.* A man, aged 59, had suffered from "bilious attacks" consisting of anorexia, lassitude, headache, depression, nausea and vomiting, since he was 10 years of age. The attacks lasted one or two days, occurring every few months at first, but during recent years they came every two or three weeks. Usually they seemed to be induced by overeating or excessive fatigue and were relieved by fasting or small meals and rest. There was no abdominal pain or distress. When 40 years old, the patient had a "nervous breakdown" lasting five years. He was markedly underweight, the blood pressure was low, and he had a pronounced visceroptotic habitus. Roentgen examination showed a long vertical stomach, which contained about 30 per cent of the barium at the end of six hours. This was due to an unusually sharp fixation and angulation of the apex of the duodenum. Because of the marked changes on roentgen examination and the failure of previous medical treatment, surgical intervention was advised. At operation, a pronounced duodenohepatic band was divided, which released the duodenum so that it assumed its normal shape and position. Striking improvement followed the operation. The "bilious attacks" stopped; there has been no vomiting and the patient gained 35 pounds (16 Kg.) in six months, his weight increasing from 120 pounds (54.4 Kg.) to 155 pounds (70.3 Kg.). He has been well for nearly two years.

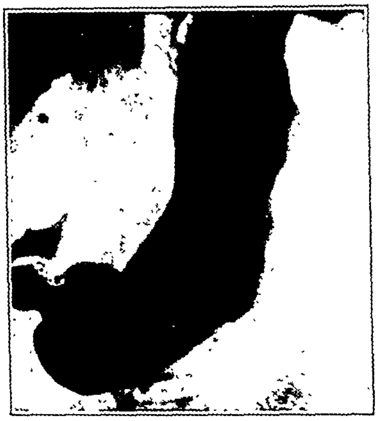

Fig. 3.—Irregularity in outline of greater curvature surface of duodenum due to pressure from without.

CASE 3.—A girl, aged 11, had complained for one year of attacks of sick headaches accompanied by nausea, vomiting and epigastric pain. During the previous two months the attacks had become more frequent and severe, and she had lost several pounds. Physical examination showed only that she was under weight and that she had a moderate enteroptotic habitus and some epigastric tenderness. Roentgen examination showed intermittent obstruction at the angle of Treitz characterized by slow emptying of the stomach, reverse peristalsis, writhing and twisting, and stasis in the most dependent part of the duodenum. Under medical treatment the patient slowly improved, and she had had only two slight attacks of headache and vomiting during the past two years.

CASE 4.—A married woman, aged 46, complained of "bilious attacks" consisting of severe headache, nausea and vomiting with marked prostration for two or three days. She had suffered from these symptoms for twenty-five years but during the past few years the attacks had become more frequent, occurring every two or three weeks. Indiscretion in eating, overfatigue, or an emotional upset often precipitated an attack. Rest in bed and a fluid diet gave quicker relief than anything else. Three years previously she had had a severe attack of abdominal pain in the left upper quadrant. Since then she had had several milder attacks and had been troubled with flatulence and gas after eating. Physical examination showed no important abnormalities. The roentgen examination showed a stomach that was not quite empty in six hours, with the apex of the duodenum fixed and angulated. A cholecystogram disclosed a slowly emptying gallbladder containing a single large gallstone. The gallbladder and its contained stone were removed without complications. The attacks of abdominal pain on the left side ceased, but within a short time after the cholecystectomy the "bilious attacks" with headache, nausea and vomiting returned. Medical measures brought little relief. A second roentgen examination, made nearly a year after the first, showed the same condition of duodenal fixation as was found at the first examination. Following a second operation with release of the constricting bands about the duodenum, the patient was almost entirely relieved of the attacks and has been quite well for many months. It is possible that this was purely a case of cholecystitis and adhesions involving the first part of the duodenum. It is interesting, however, that the long standing digestive disturbances called bilious attacks were not controlled until the operation devised for cases of fixation of the duodenum was performed.

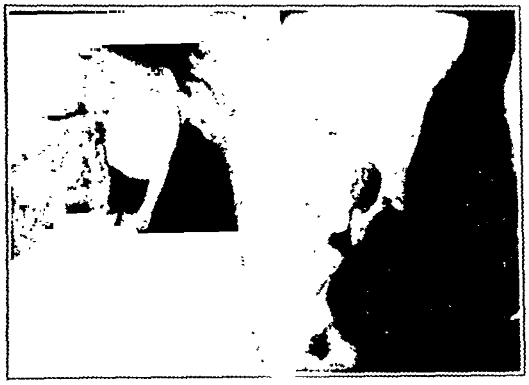

Fig. 4.—Angulation and high fixation of the duodenum.

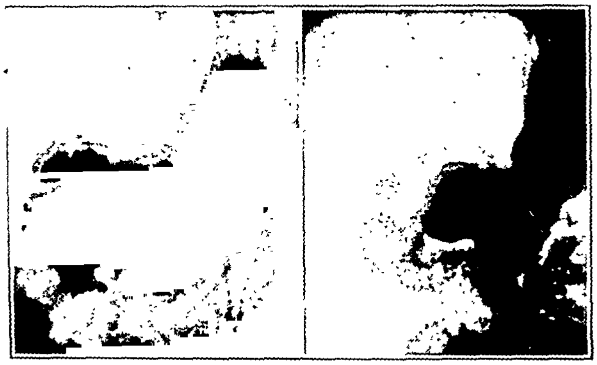

Fig. 5.—Redundance of upper part of descending limb of duodenum.

TREATMENT

The treatment for this condition constitutes a rather difficult problem. Much of the difficulty concerns the decision as to which patients should have the benefit of surgical measures. At present, we think that a conservative attitude regarding operation is the best one. And yet a certain number of cases undoubtedly require surgical intervention for relief or cure. In this series of forty-six patients, eight have been operated on, five with excellent results, one with moderate benefit and two with no improvement. And as the condition, even without treatment, is not rapidly progressive, we think that with few exceptions medical measures should be given a thorough trial before resorting to operation. In this series, thirty-eight patients were treated medically. A survey of the literature on the subject shows that practically all observers are agreed that the vast majority of these patients do not require operation and that they respond very satisfactorily to medical treatment.

Medical measures are largely concerned with treating the visceroptosis, constipation and nervous symptoms. Diet is important. As most of the patients are underweight, the diet should be of high caloric value. In addition, all foods should be thoroughly cooked and the vegetables puréed, giving a bland, low residue, so-called smooth diet. Frequent small meals should be given, at least during the earlier part of the treatment. There should be enough fruit and vegetables to help overcome constipation. Often these patients have a spastic or irritable colon which needs appropriate care. With some patients the best plan is rest in bed with forced feeding until a substantial gain in weight has been made. A course of postural treatment is most helpful. Wilkie[1] has already emphasized this. The treatment is carried out by elevating the foot of the bed, elevating the hips, or having the patient lie on the stomach or right side after meals, or assume the knee-chest position for short periods each day. Some patients will obtain marked relief during an acute attack by the last procedure, as was the case with three of the patients. In many instances a properly fitted corset or abdominal belt is needed to overcome the traction of the mesenteric pedicle at the angle of Treitz and of the stomach on the first half of the duodenum. A course of abdominal exercise and massage will help muscle tone considerably. Phenobarbital or bromides are useful for the nervous symptoms resulting from spasm of the pylorus, duodenum and colon. Constipation requires laxative nonbulky food, liquid petrolatum and agar, but laxatives should be avoided. The patients should be kept under prolonged observation to get the best results from medical treatment. Continued perseverance is required of both patient and physician.

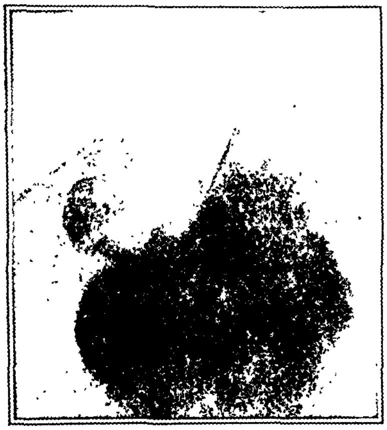

Fig. 6.—Narrowing of descending limb of duodenum caused by bands.

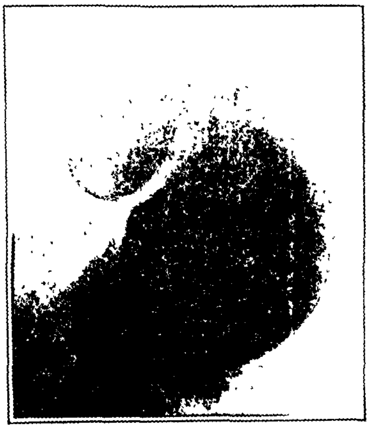

Fig. 7.—Dilatation of duodenum resulting from obstruction at the angle of Treitz.

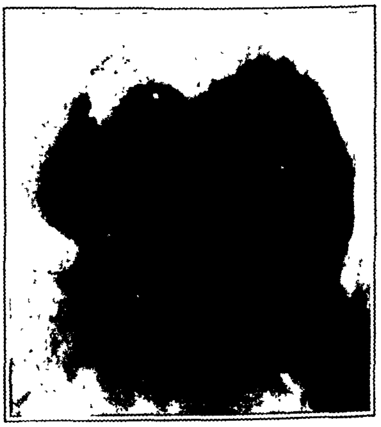

Fig. 8.—Another example of dilatation of the duodenum resulting from obstruction at the angle of Treitz.

If satisfactory results are not obtained by conservative treatment, surgical intervention should be considered. The following considerations should help to decide the question of operation: the result of suitable medical treatment carried out for a sufficient time; the amount of obstruction at the duodenojejunal angle with its resulting stasis in the dependent loop of the duodenum; the extent of the duodenal fixation, especially if accompanied by a six-hour gastric retention, and the severity of the symptoms especially of pain and vomiting. Young patients with short histories and severe pain and vomiting seem to get the best results from operation. Division of constricting bands seems to be the operation of choice for cases with fixation of the first half of the duodenum, while duodenojejunostomy is best suited to the cases of obstruction at the duodenojejunal angle. The more radical operations with their greatly increased risk are not justifiable. The postoperative care of these patients is extremely important. The best results are obtained when a suitable diet, massage, postural treatment and an abdominal belt are used during convalescence. In the most marked cases with a short history, marked roentgen changes and considerable epigastric pain, the results of operation are quite striking. This was the case in four of the eight patients operated on in this series.

SUMMARY

1. Chronic intermittent duodenal obstruction or ileus is generally accepted as a clinical entity.

2. The two most frequent and important causes of the condition are, first, peritoneal adhesions or bands fixing the first and second parts of the duodenum, and, second, pressure of the mesenteric pedicle, or a sharp occlusive angle at the duodenojejunal flexure causing obstruction of the third part of the duodenum.

3. The present study includes forty-six cases of this condition, eight of which came to operation.

4. The symptoms are extremely variable and noncharacteristic but should suggest the possible presence of the real trouble in many instances and lead to careful roentgen study as a consequence.

5. Accurate diagnosis depends largely on a careful and skilful roentgen study. The characteristic roentgen observations found in the various types are described.

6. The great majority of these cases respond satisfactorily to medical treatment, but there is a small group with pronounced symptoms and marked roentgen observations which does best with conservative surgical measures.

THE TREATMENT OF FRACTURES BY MEANS OF SKELETAL DEVICES

WITH FIXATION IN PLASTER-OF-PARIS CASTS *

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LINCOLN, NEB.

It may be said that the objective of fracture treatment was formerly to secure the patient's recovery with the injured part or parts in good contour and with the fracture fragments in as good position as appeared to be possible. At present, much more attention is being paid to restoration of function. And with the more general use of the x-rays during and after fracture treatment, it is becoming apparent that restoration of correct anatomic position of the injured parts goes hand in hand with the return of satisfactory function. Not only the medical profession but also the public is becoming aware that accuracy of reposition of fragments in fractures is essential to obtaining uniformly good functional results.

It is well known that, whatever occasional statistics may seem to indicate, satisfactory results as to anatomic reposition and physiologic efficiency are not being obtained regularly. The faults of fracture treatment lie obviously at two points: (1) the failure to obtain good primary position, and (2) the inability to control the fracture or the patient after (if) the fracture has been properly reduced. Some of the difficulties in these respects arise out of the clinical teaching of textbooks and medical schools, but this simply reflects a difficulty further back; the source of failure lies in the perplexity of the profession as a whole in the face of a confusion of what are thought to be principles of treatment. There are so many "solutions," new and old, for the familiar problems that one is at a loss, sometimes, to discover which are really in accord with the manifest indications for treatment.

Witness, as examples of these confusing tendencies, the precepts of the schools and the treatises: 1. Plaster of paris should never be used in treating fractures. 2. If plaster of paris is used as a circular cast, the cast must always be split. 3. The Thomas splint is always indicated for the hospital treatment of compound fractures. 4. The Thomas splint must never be used except as an emergency splint. 5. The use of ice tongs, pins and other skeletal devices is dangerous because likely to produce infection or injury to neighboring joints. 6. It is of primary importance to establish early motion, especially in compound fractures. The list might be extended. The task is rather to suggest which of these divers methods best conform to fundamental surgical principles and which may be united into a more effective procedure for treating fractures. For it is probably not a confusion of fundamentals that is perplexing but rather the various technics thought to be useful in applying them.

BACKGROUND

The history of fracture treatment in this country, as elsewhere, is the story of dozens of methods, a myriad of braces, splints and other apparatus, and a variety of "principles" to justify each procedure. Out of the chaos one finds emerging, in the early years of the last century and, of course, before the antiseptic era, these precepts: (1) extension and counterextension in direct line of the affected member; (2) splinting to hold fragments in their proper places; (3) immobilization, as efficient as possible, giving rest until healing is well under way and (4) in compound fractures, treatment of wounds by cleansing, application of cold water and use of various lotions.[1]

After Lister's time, various changes were made to permit the antiseptic care of wounds. Lister himself endeavored to exclude infection from wounds by his use of antiseptic dressings; later surgeons, departing from Lister's teaching, carried into the wounds themselves the war against infection. In 1922, the older methods of fracture treatment, embracing those already mentioned and others evolved in the latter part of the nineteenth century, were summarized by Boorstein and Landsman as follows:[2]

1. Reduction of the fracture after the swelling has subsided.
2. Reduction of the fracture by direct pull.
3. Immobilization as far as possible of the joints above and below the break.
4. Application of a straight splint though the limbs are usually round. [By no means universally the case, and probably not from principle. Cf. Dr. Philip Syng Physick's curved splint for morbus coxarius.[3]]
5. Securing of immobilization of bone and joint by bandages left in place until firm union has occurred.
6. Allowing the soft parts (skin, nerves, vessels and muscles) to take care of themselves.
7. Contour or union in good position the main aim.
8. Prolonged confinement in bed.
9. Correction later on of deformity if it occurred during treatment. It is often considered inevitable.
10. Roentgen ray used only once or twice during the entire time.

This is the old decalogue! Today much of it has been put aside, and we gather from a similar summary, by Boorstein and Landsman, of modern methods and from other sources that the present "commandments" are these:[4]

1. "Splint 'em where they lie!"
2. Immediate reduction.
3. Selection of apparatus which will maintain reduction, but,
4. Provision for its early removal (or disturbance) to permit inspection, dressings, and massage or motion.
5. Plaster of paris permitted only when completely divided in at least one line. Circular plaster-of-paris splints should always be split.
6. Traction splints usually indicated. If plaster is used, it must be split.
7. Skeletal traction, when used, is in conjunction with a suspension splint.
8. For compound fractures, débridement is to be followed by primary or partial closure, or by some other form of active antiseptic treatment.

With all these conflicting procedures, remote, recent and contemporary, the profession is confronted. Little wonder that the more fundamental principles have been

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* Read before the Section on Orthopedic Surgery at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 12, 1931.

[1] Coates, Reynell: An Analysis of Some of the Modes for Effecting Extension and Counterextension in Fractures of the Lower Extremities, Am. J. M. Sc. **20**: 18, 1837. Norris, G. W.: Report of the Surgical Cases Treated at the Pennsylvania Hospital, 1838, Am. J. M. Sc. **23**: 273, 1838-1839.

[2] Boorstein, S. W., and Landsman, I. J.: Treatment of Fractures by Orthopedic Methods, Arch. Surg. **7**: 643 (Nov.) 1923.

[3] Randolph, J.: Remarks on Morbus Coxarius. Dr. P. S. Physick's Method of Treating This Disease, Am. J. M. Sc. **7**: 299, 1830.

[4] Boorstein and Landsman (footnote 2). Outline of Treatment of Fractures: Syllabus Adopted at the Boston Conference, April, 1922, Arch. Surg. **6**: 172 (Jan.) 1923. Cooperative Committee on Fractures, A. M. A.: Primer on Fractures, Chicago, 1930.

lost sight of and that confusion has resulted. Or, if it is said that the fundamentals have not been lost sight of, then it must be admitted that the profession is not using the best methods at its disposal for the most effective application of them.

PRINCIPLES

Now the principles of all fracture work should be apparent: (1) immediate restoration of correct length and position; (2) maintenance of that length and position; (3) complete rest to preclude muscle spasm and other complications and to facilitate healing; and, in compound fractures (in addition to the foregoing), (4) primary asepsis or antisepsis to reduce infection; (5) adequate drainage; and (6) protection against infection or reinfection. Immobilization, in connection with the third of these principles, must be so effective that all movement is prevented and so that pain and muscle spasm are relieved. Without elaborating further, the fact may be pointed out that, whereas some of the older methods sought to realize these principles, many of the modern ones lose sight of them; hence the results are poor.

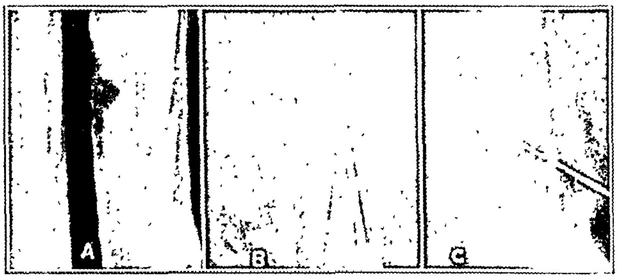

Fig. 1.—*A*, fracture of tibia and fibula in a child, aged 10 years; pin traction through calcaneum and direct fixation of fragments; *B* and *C*, lengthening and fixation done after seven weeks of shortening during which firm union had occurred in malposition. Full length was secured on the operating table; the pins through the calcaneum and in the fragments were embedded and left in the cast.

PROPOSALS

A somewhat new attempt to fulfil some of these basic requirements in the treatment of fractures came soon after the war with the so-called fixed traction of Sinclair, Pearson and others. Using ice tongs and pins for skeletal traction in combination with Thomas splints, they got much better results than were usual and convinced me, at least, of the value of such devices. Even these, however, were not without complications in the way of slipping points (of ice tongs), loss of position, and the like; and the need for an even more truly "fixed traction" was apparent.

This was recognized by several of us. T. Turner Thomas[5] sought for greater security in fractures of the leg, using an iron plate having a sharp spike at one end, which plate he placed against the plantar surface of the foot and then included in a foot-cast, which was well padded to permit its use in securing extension. He then placed a board splint along the back of the entire extremity and included leg and splint in a second cast extending above the knee. These casts having set, he reduced the fracture by a pull on the foot-cast, and maintained reduction by driving the spiked plate perpendicularly into the wooden splint where it extended beyond the heel, and then included the entire extremity in a third cast.

My own effort to achieve fixed traction was inspired rather by the technic of Sinclair and the others in the use of the Thomas splint. But to avoid the complications which they occasionally had and, at the same time, to conform more exactly to principles of immobilization, securing full length, maintaining correct position, and avoiding pain and muscle spasm, I modified this technic. Securing traction on the operating table at the time of primary reduction, I fixed the entire traction apparatus, moleskin adhesive plaster, ice tongs, pins or whatever form they took, in a plaster-of-paris cast. I[6] advocated this practice in simple fractures shortly after the World War:

> 1. The usual splint applied to fractures does not immobilize at all. This applies even to the usual plaster-of-paris cast.
>
> 2. A considerable number of splints applied to fractures that are followed by joint stiffness have been put on too tight. This fault is as serious as having splints too loose. Even splints that are bandaged too tightly may not immobilize. . . .
>
> 3. Uniformity in results after fractures was obtained in France during the military activity more nearly by a standard method of splinting than has ever been accomplished in civilian practice.
>
> 4. In fractures of the femur, the general adoption of the Thomas splint, which gives traction and immobilization (if properly applied) either from the skin or from the bones themselves (ice tongs, pins, etc.) without constriction, will contribute greatly, not only to better results in the alinement of the fragments, but also to a very great reduction in the amount of joint stiffness and disability after such injuries.
>
> 5. In other fractures, especially of the forearm, leg and spine, the more general use of plaster of paris, applied so as to give real immobilization, will reduce the amount of pathologic change, secure more rapid healing of the injured part, and give more and better function in adjacent joints than can be obtained in any other way.

and two years later for compound fractures as well.[7] I soon found that this technic gave much better results, especially since I have applied to the treatment of compound fractures, as well as to osteomyelitis, the petrolatum packing technic of drainage and rest.[8]

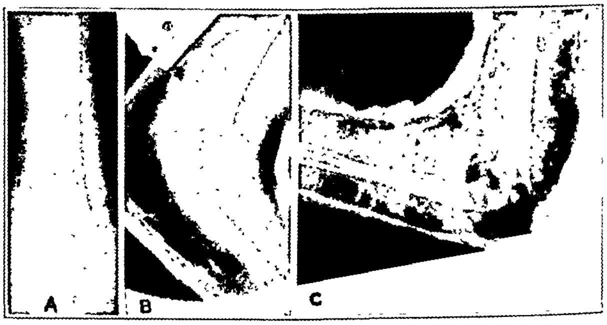

Fig. 2.—Old fracture at lower end of humerus left in malposition brought into better position (*C*) by traction pins through the olecranon and through the middle third of the humerus. After strong traction on these two pins and flexion at the elbow, length and position were maintained by a cast including entire arm and pins.

In dealing with simple fractures, my procedure is this: The patient is anesthesized on the fracture table as soon as possible after the fracture. The regular traction devices, which are a part of the table, are used in those fractures for which they are suitable, but for others special devices are put on or improvised so that fixed traction may be made on the injured part. In those cases in which, with suitable traction, the ends of the fracture fragments may be made to lock together in correct line and apposition, no additional special device is necessary for controlling the fragments. In many simple fractures, however, especially of the forearm and the leg in the lower third, even after good traction, position cannot be maintained. In such cases I do not hesitate to use ice tongs or pins, so that with traction complete and the fragments in correct position, these ice tongs or pins may be incorporated into the plaster cast as it is applied. With the hardening of the cast, then, the fragments are locked, as it were, in a position of full length, and cannot slip back or rotate. In the case of compound fractures, the foregoing procedure is altered as follows: The fractured extremity is immobilized on the traction table, as soon as the anesthetic has been administered, in good position and with full length. This is done with the smallest possible number of movements. The area of the compound fracture is opened widely and provision made for drainage and for packing the entire space wide open with petrolatum gauze. Débridement and mechanical, or even chemical, antiseptic cleansing are resorted to as a part of this first "clean-up" operation.

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[5] Thomas, T T: A Method of Applying Extension with Plaster Cast Fixation in Fractures of the Leg, S Clin. North America **1**: 207 (Feb) 1921.

[6] Orr, H. W.: Early and Complete Immobilization as a Factor in the Preservation of Joint Function in the Treatment of Fractures, Am. J. Surg. **35**: 146 (May) 1921.

[7] Orr, H W., and Thomson, J. E. M.: Maintaining Length and Position in the Treatment of Compound Fractures, J. A. M. A. **83**: 1399 (Nov. 1) 1924.

[8] Albee, F. H., and Patterson, Marjorie B.: The Bacteriophage in Surgery, Ann. Surg. **91**: 855 (June) 1930. Orr, H. W.: Treatment of Osteomyelitis and Other Infected Wounds by Drainage and Rest, Surg., Gynec. & Obst **45**: 466 (Oct.) 1927; Osteomyelitis and Compound Fractures, St. Louis, C. V. Mosby Company, 1929.

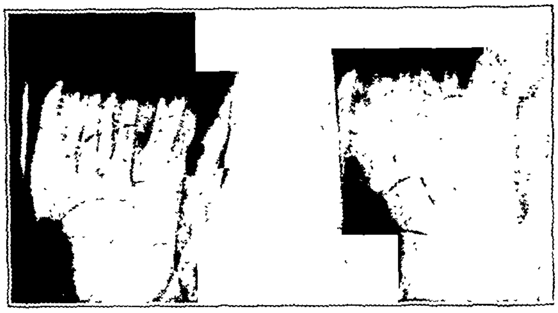

Fig. 3.—Position obtained by use of pin traction through toes. A heavy metal loop extending beyond the toes is embedded in the cast; pins are put through the second phalanges (in this case) of the third and fourth toes only. Twist traction (Spanish windlass) from the pins to the metal loop draws the toes out to perfect length and position for the metatarsals.

As in the case of simple fractures, the fragments are brought into as good position as possible and then, if it appears that it will be difficult to control the fragments, ice tongs or pins are inserted on one or both sides of the fracture area so that they will prevent rotation and maintain the length and position of the fragments when they are included in the cast. The wound then having been packed open with petrolatum gauze and the pins or ice tongs inserted as necessary, a dry sterile dressing is placed over the petrolatum packing and an extensive plaster-of-paris cast is put on. Position and control are thus such that the original deformity is corrected at once and cannot recur. Muscle spasm is prevented; pain is minimized; and the wound, while free to drain, is protected against reinfection.

Finally, there is no provision made for postoperative dressings.[9] If it happens that bleeding or other discharge becomes profuse, so that all the dressings and the cast are saturated, a change of the outside dressings may be done through a window in the cast and under strictly aseptic conditions. The wound and wound surface, however, should not be disturbed and, of course, nothing should be done to alter the position of the limb or fracture fragments.

RESULTS

To discuss argumentatively all the perhaps controversial points involved in this procedure would not be practicable. Most of them have been discussed before.[10] It will be enough for my present purpose to tabulate and to describe the results of treatment according to this technic.

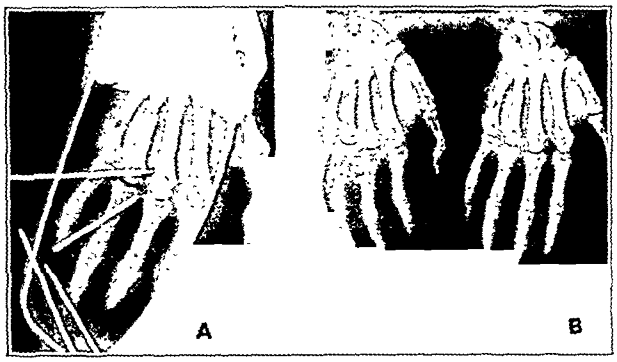

Fig. 4.—*A*, details of pin traction and fixation for fracture of fourth and fifth metacarpals. The metal loop embedded in the cast extends beyond the tips of the fingers, furnishing an "anchor point" for traction pins through the phalanges of the fourth and fifth fingers. Fracture fragments had been in extreme malposition. End-result (*B*); pin marks show no sign of infection.

To review some of the suggestions made at the beginning of this paper, it has been found important to give first thought to the functional result which the physician hopes to achieve. Anatomic reposition, recovery with all parts in as nearly perfect anatomic position as possible, contributes more than anything else to good functional results. It has been my experience that this is true even in those severe compound fractures with considerable loss of substance in which great disability is ordinarily expected. Excellent results have been obtained by this simpler method as a result of its saving of wear and tear on the patient, its prevention of muscle spasm and pain, the minimum of damage to soft parts and the reduction of infection, all of which contribute to an early recovery with the parts in good position.

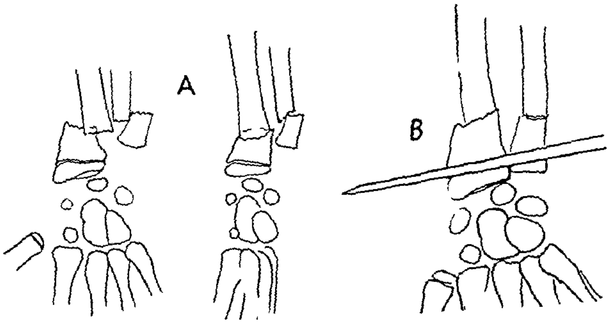

Fig. 5.—A difficult fracture of the forearm with the position obtained at once (*B*) without open operation by use of traction on one pin through the olecranon and a second pin, as shown, through the distal fragments of the radius and ulna. (The case was of a child, aged 10 years.) The length and position secured by traction on the operating table were maintained permanently by a cast which included the entire arm and the pins. Cast and pins were removed after four weeks.

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[9] Orr (footnote 8).

[10] Orr (footnotes 7 and 8). Albee and Patterson (footnote 8). Orr, H. W.: A New Era in the Treatment of Osteomyelitis and Other Infections, Second Detroit Orthopedic Lecture, Wayne County Medical Society, March 29, 1930. St. Paul, Bruce Publishing Company, 1930.

The accompanying tables and illustrations will explain something of my technic and results. In referring to the tables, it is to be borne in mind that a patient pronounced healed or cured has practically a full return of function. Compound fractures were chosen for these tables since, as the general principles are the same as for other fractures, their greater technical difficulty offers a severer test for the method which I advocate. The high percentage of good results may be attributed to the various advantages of the simpler procedure, as shown in the tables.

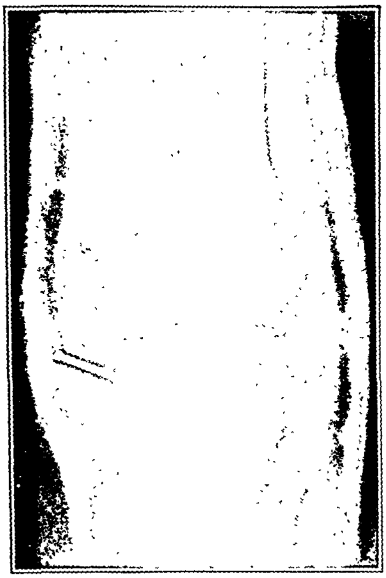
Fig. 6.—An old fracture of the internal condyle of the tibia with bow leg deformity and considerable disability of a year's standing in a patient, aged 45. The fragment was depressed so that the joint surface of the tibia was much lower on the inner side of the knee. By means of an oblique osteotomy, the depressed fragment was raised and fastened in place by a nail. No opening was made into the joint. The entire extremity (with the pin) was kept in the cast for six weeks; almost complete correction and relief were obtained.

The illustrations show various uses of skeletal traction obtained by using pins embedded in the plaster-of-paris cast. We have also employed pins through the heel and through the tibia in two cases of severe compound fracture of the ankle with additional direct fixation of fragments in the wound. With the wound packed open with petrolatum gauze and then covered over with dry sterile gauze (without the use of drainage tubes or stitches), a closed cast including the ends of all the pins was applied. The fragments were controlled, and there was niether muscle spasm nor inflammatory complication. Pins in the wound area were removed in two weeks without opening the cast; those in the tibia and heel were taken out after six weeks. Excellent results were obtained in both cases.

Table 1.—*Compound Infected Fractures*

	Primary	Secondary	Healed	Not Healed	Amputation	Died
Upper extremity......	20	10	24	0	3	3
Thigh................	7	10	17	0	0	0
Leg..................	20	18	35	1	2	0
Total..............	47	38	76	1	5	3

Table 2.—*Fractures Compounded by Operation*

	Primary	Secondary	Healed	Not Healed	Amputation	Died
Upper extremity......	30	41	71	0	0	0
Thigh................	9	25	34	0	0	0
Leg..................	39	39	78	0	0	0
Total..............	78	105	183	0	0	0

Table 3.—*All Compound Fractures*

	Primary	Secondary	Healed	Not Healed	Amputation	Died
Orr and Thomson....	125	143	259	1	5	3

It is clear, then, that while there should be no quarrel with some of the modern precepts of fracture treatment, such as the necessity for emergency splinting and for immediate reduction, one should, on the other hand, look back to some of the older teachings which emphasized rest, immobilization, and dependence on natural agents in healing. Today's methods differ from the older ones, of course, in that they can achieve more perfectly, by the use of modern apparatus, the objectives which the latter perhaps seldom realized. At the same time, however, such modern apparatus and practices as are involved in any hand to hand combat with infection in the wound (irrigation tubes, drainage tubes, antiseptic applications in daily dressings, for example) are discarded, and the benefits of rest and immobilization are put ahead of whatever leads to disturbance or movement of a healing fracture.

In addition to the results previously indicated must be added these points which, especially in compound fractures, also recommend the procedure that has been described: (1) The fracture is better managed; (2) the patient is better managed; (3) the patient requires less constant attention from surgeon, assistants or nurses; (4) the period of hospital care is shortened; (5) the cost to the patient is, because of several of these considerations, lessened; (6) there is relief from the pain of daily dressings, particularly important in the care of children; (7) the possibility of secondary infection is minimal; (8) there is adequate drainage in a wound which is, from the point of view of drainage, open but, from that of infection, closed.

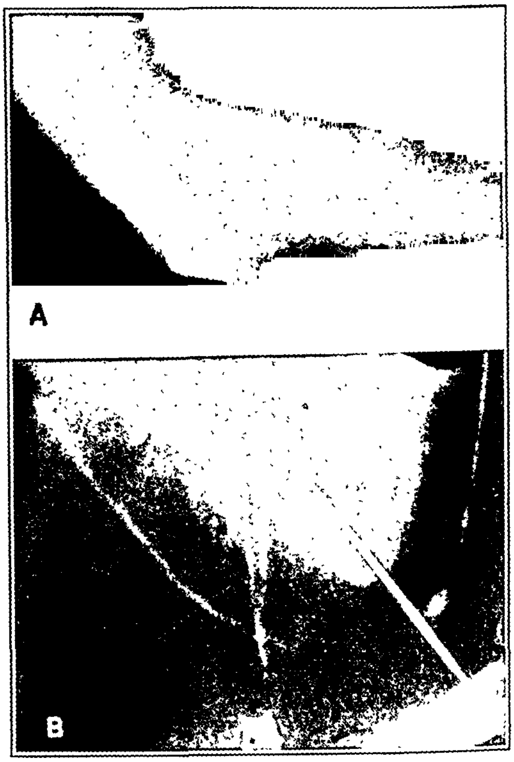

Fig. 7.—Direct pin fixation of a recent fracture of the olecranon in a patient, aged 60. *A*, fixation in this manner may be accomplished easier without open operation by first transfixing the small fragment, then carrying the fragment on the end of the pin into correct position, and then forcing the pin through into the shaft of the bone. *B*, the arm can then be flexed at the elbow, which is very desirable, and the arm and pin immobilized in a cast.

SUMMARY

1. The modern demand in the treatment of fractures, both from the profession and from the public, is for correct anatomic replacement of injured parts and recovery with a maximum of function.

2. The higher development of the roentgen ray and specialization in treatment renders unavoidable a more critical attitude toward the treatment and end-results of fractures.

3. The treatment of fractures by weight and pulley or elastic traction and by less than highly efficient methods of fixed traction in splints has given no more than a rather low percentage of first class results.

4. Technic must therefore be improved, both in the primary reduction and postoperative treatment of fractures, and in the control of the fracture and the patient during the period of healing.

5. The use of skeletal traction devices—ice tongs, pins and even direct fixation of fragments at the point of fracture—and the incorporation of these fixation devices in a plaster-of-paris cast has given better control of the fracture than any other splint.

6. The former objection to plaster of paris, that it becomes soiled because of discharge from compound fractures and that it must be removed for postoperative dressings, no longer holds. The technic that I use in osteomyelitis and have also applied to compound fractures permits the application of a primary dressing which, in most cases, is left undisturbed throughout the entire period of healing.

7. The results that I have had, following these principles and methods of treatment, are better than those reported for other methods.

1307 N Street.

ABSTRACT OF DISCUSSION

DR. HARVEY C. MASLAND, Philadelphia: Operative skeletal traction is an acknowledgment of the fact that the old time-worn mechanics is futile for good reductions of bad fracture deformities. I wish to call attention to a skeletal traction method absolutely nonoperative. It seems to be accepted with a fatalistic conviction that there can be no improvement along strictly nonoperative lines. After an experience of more than eleven years with a distinctly new type of splint, I assert with all emphasis that nothing is farther from the truth. These splints use unpadded plaster casts and, where needed, adjustably fitted padded rings, with connecting arms, slidable over one another to give the necessary distention. The casts and rings brace against bone structures adjacent to the fractured bone. Nonoperative skeletal traction and countertraction are obtained in the normal alinement of the bone. The fractured bone is not covered. If the fracture is compounded, it can be dressed without disturbing the splint. Better than with any extension table, as now used, extension with greater safety to the soft tissues is secured. In intracapsular fractures of the femur these splints will give reductions as good as or better than with any other method. The knee joint and the hip joint are movable at all times. The fracture is stabilized. The patients can be propped up in bed to any position of comfort. They do not die from the punishment of the treatment. Results in fractures of other bones are even more gratifying. With regard to fractures of both bones of the forearm and of the shaft of the humerus as shown here this morning, I expect to obtain apposition of the fragments as a matter of routine. T-fractures of the head of the humerus with dislocation of the head are a separate proposition. I would make a plea for a higher grade of mechanics than has been in use for so many ages. A better type of nonoperative skeletal traction is safer for surgeons generally.

DR. C. W. DURHAM, Jackson Springs, N. C.: Do you use something to make a drill hole through those fractures or do you just drive the pin in?

DR. F. J. GAENSLEN, Milwaukee: I am in accord with Dr. Orr when he recommends skeletal traction and incorporation of the traction device in the plaster cast. The method finds application in a great many locations. Böhler has called attention to the fact that in fractures of both bones of the forearm great care must be used to have the proper degree of traction on the lower fragments so that when the pin is driven through the lower fragments the styloid process of the radius and ulna will be on the proper level. He also emphasizes the need of exerting moderate pressure to bring the lower end of the radius and ulna close together to avoid relaxation of the lower radioulnar ligament. He has an assistant making powerful traction on the hand, a counterpull being provided by a broad belt brought around the upper arm and fastened to a hook in the wall. Instead of the heavier steel pin we have used the Kirschner wire apparatus, with the greatest satisfaction. The wires are very small in caliber, make small wounds, and do not cut through either bone or soft parts. The Kirschner apparatus should make a welcome addition to the armamentarium of every man doing fracture work.

DR. H. WINNETT ORR, Lincoln, Neb.: I was going to make the point that Dr. Gaenslen mentioned. I used to hammer the pins in. Now I use a drill pin, which I find more satisfactory, a soft steel pin which will not break. One can put it in with an ordinary drill and with the point the same caliber as the shaft. In order to keep the records of the section straight on the matter of splinting with such provision for frequent dressing as the previous speaker mentioned, I want to say that it is the opinion of many physicians that it is never necessary to splint with provision for frequent dressings in compound fractures.

TULAREMIA

REPORT OF A CASE, WITH POSTMORTEM OBSERVATIONS AND A NOTE ON THE STAINING OF BACTERIUM TULARENSE IN TISSUE SECTION *

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ALFRED M. GLAZER, M.D.
AND
LEE FOSHAY, M.D.
CINCINNATI

In a review of the literature on tularemia we have been able to find but eight cases in which the autopsy observations are reported. The first was put on record by Verbrycke[1] in 1924. His patient died eighteen days after the onset of the illness, and the lesions of tularemia were found in the lungs, spleen and lymph nodes. The next case was reported by Kolle and Wassermann.[2] This patient died twenty-six days after the onset of the illness, and the lesions were limited to the spleen. In 1927 Francis and Callender[3] described the case of a patient who died approximately five months after a presumptive exposure, and lesions were found in the lungs, liver, spleen and lymph nodes. In 1928 five more cases were reported. Bardon and Berdez[4] reported one in which the patient died sixteen days after the onset of the illness, and lesions were found in the liver, spleen and lungs. Goodpasture and House[5] made record of a patient who died eighteen

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* From the Departments of Medicine and Pathology, Cincinnati General Hospital, and the Christ Hospital Research Laboratory.

[1] Verbrycke, J. R., Jr.: Tularemia, with Report of Fatal Case Simulating Cholangeitis, with Postmortem Report, J. A. M. A. **82**: 1577-1581 (May 17) 1924.

[2] Kolle, Wilhelm; and Wassermann, August: Handbuch der pathogenen Mikroorganismen, ed. 3, Jena, G. Fischer **6**, 1927.

[3] Francis, E., and Callender, G. R.: Tularemia: Microscopic Changes of Lesion in Man, Arch. Path. & Lab. Med. **3**: 577-607 (April) 1927.

[4] Bardon, Richard; and Berdez, George: Tularemia: Report of a Fatal Case, with Postmortem Observations, J. A. M. A. **90**: 1369-1371 (April 28) 1928.

[5] Goodpasture, E. W., and House, S. J.: Pathologic Anatomy of Tularemia in Man, Am. J. Path. **4**: 213-226 (May) 1928.

days after exposure, and lesions were found in the liver, spleen and lymph nodes. They also described the histologic picture of the primary lesion on the finger. W. M. Simpson[6] reported a case in which the patient lived but four days after the onset of the illness. At autopsy, lesions were found in the spleen, liver and lymph nodes. Palmer and Hansmann[7] placed on record a case in which the patient died eight days after the onset of the illness, and lesions were found in the lungs, spleen and lymph nodes, while a similar distribution of lesions was found in a case reported by Bunker and Smith,[8] their patient also dying eight days after the first appearance of the disease.

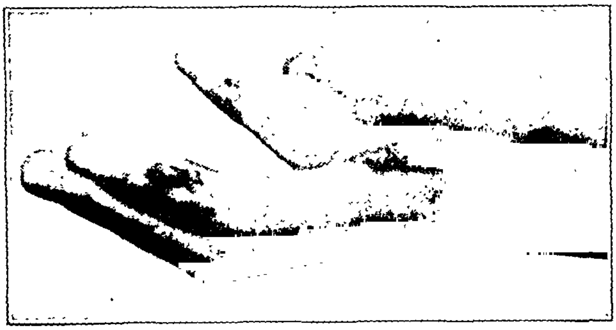

Fig. 1.—Multiple tularemic ulcers of fingers of left hand.

Because of certain unusual clinical features and the finding, for the first time, of lesions in organs other than the lungs, liver, spleen and lymph nodes, we present the following case. Furthermore, we believe it to be the first time that Bacterium tularense has been demonstrated in sections of human tissues:

History.—B. F., a white woman, aged 37, married, a housewife, was admitted to the Cincinnati General Hospital, Oct. 11, 1930, complaining of chills and fever and a sore finger on the left hand. The illness commenced rather suddenly, October 1, with severe chills and fever, general aching of the bones and vomiting. Twenty-fours hours after the beginning of the chill the patient felt a dull, aching pain in the entire left arm, particularly in the axillary region. Soon she noticed a small papulopustular lesion of the left index finger. On the following day there was enlargement and tenderness of two or three of the left axillary lymph nodes. The lesion on the finger was lanced by the family physician, and the enlargement of the axillary lymph nodes gradually subsided. Three days after the appearance of the lesion on the index finger the patient noticed a similar lesion on the small finger of the same hand. This was followed by enlargement of the left epitrochlear lymph node. The fever continued, and she had repeated chills, sometimes two in a day. She came to the hospital ten days after the onset of the illness.

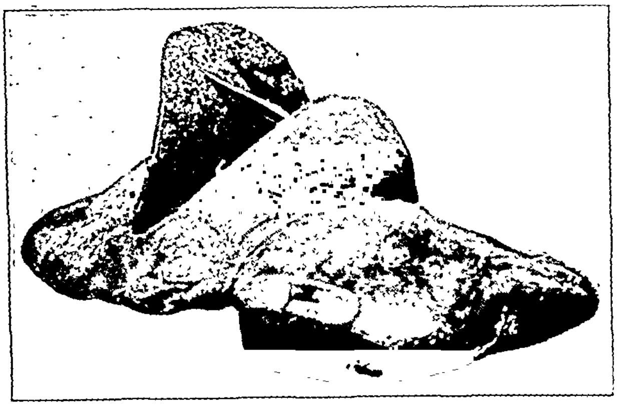

Fig. 2.—Liver with tularemic abscesses.

September 27, four days before the onset of the present illness, the patient was on a hunting trip with her husband and family in the south of Kentucky. Two or three rabbits were shot and dressed by the patient and her brother-in-law. So far as the patient knew, she had no abrasions of her hand at the time, nor did she cut her hand while dressing the animals. But the brother-in-law, who had a hang-nail, developed a papulopustular lesion of his finger and had mild chills and fever for a few days. These symptoms had ceased before the patient's admission to hospital.

The past history and the family history of the patient were irrelevant, except for the fact that a cousin died the preceding year of "rabbit fever," after an illness lasting seven days.

Examination.—The patient was well developed and well nourished, and apparently was acutely ill. The temperature was 103.6, the pulse 104, and respirations 26. The blood pressure was 110 systolic and 64 diastolic. The face was flushed. A small papulopustular lesion was present on the right side of the chest, near the costal margin, and another on the inner aspect of the right thigh. An ulcer, 1 cm. in diameter, with ragged edges, was seen on the index finger of the left hand, and a small pustule, 0.5 cm. in diameter on the little finger. One epitrochlear and one axillary lymph node were both enlarged to the size of a small marble and were firm and moderately tender. There was no other lymphadenopathy. There was no redness about the enlarged lymph nodes nor were there red streaks on the arm.

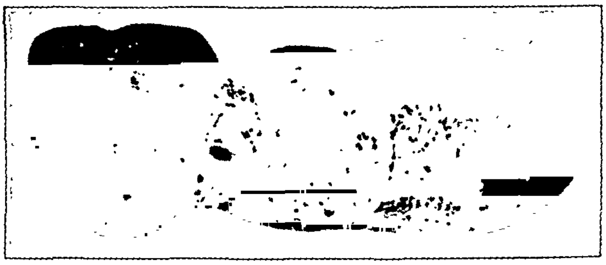

Fig. 3.—Spleen with tularemic abscesses.

Examination of the chest showed a slightly impaired percussion note over the right base, with numerous fine crepitant râles over both bases and in the axillary regions. The remainder of the physical examination gave essentially negative results.

Before the patient entered the hospital another pustule developed on the middle finger of the left hand. The temperature fluctuated between 102 and 105 F. No chills occurred after admission. One week after admission there was rather marked respiratory distress, resembling that seen in pneumonia but without cough or expectoration. Physical examination of the chest showed numerous râles in the lower lobes both anteriorly and posteriorly. At the same time the abdomen became distended and a rather marked diarrhea developed which did not respond to treatment. The respiratory distress and diarrhea persisted, and the patient became irrational and finally comatose twenty-four hours before death. October 22 she died, twelve days after admission and twenty-two days after the onset of the disease.

As no specific therapy for this disease has been described, when the prognosis became desperate 200 cc. of convalescent serum, obtained from the patient's brother-in-law, was given intravenously in fractional doses, but apparently without benefit. It was ascertained subsequently that convalescent human serum had been used once in the Johns Hopkins Hospital, apparently with good results.

On admission the white blood count was 12,000, with a normal differential count. Forty-eight hours before death the white blood count was 4,000, with 88 per cent polymorphonuclears. Examination of the urine was negative except for a trace of albumin and a few granular casts. Blood culture was negative. The agglutination test, on blood taken during the second week of the disease, was positive at a dilution of 1:40. A guinea-pig, inoculated with whole blood taken from the patient on admission, died with the typical lesions of tularemia. Another guinea-pig, inoculated with pus recovered two days before death from the lesion on the middle finger, died six days after inoculation with lesions typical of tularemia. Bacterium tularense was recovered from the spleen in pure culture on coagulated egg yolk medium. This culture is still being carried on and is being used in other work which will be reported later by one of us. The Wassermann reaction was negative.

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[6] Simpson, W. M.: Clinical and Pathological Study of Forty-Eight Nonfatal Cases and One Rapidly Fatal Case with Autopsy, Occurring in Dayton, Ohio, Ann. Int. Med. **1:** 1007-1059 (June) 1928.

[7] Palmer, H. D., and Hansmann, G. H.: Tularemia: Report of a Fulminating Case with Necropsy, J. A. M. A. **91:** 236-239 (July 28) 1928.

[8] Bunker, C. W. O., and Smith, E. E.: Tularemia: Report of Four Cases, One Fatal, with Autopsy Report, U. S. Nav. M. Bull. **26:** 901-911 (Oct.) 1928.

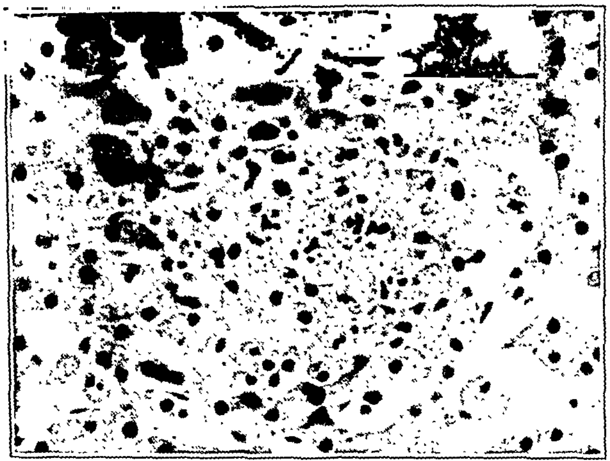

Fig. 4.—Section of liver, showing early tularemic lesion; reduced from a photomicrograph with a magnification of 800 diameters.

Pathologic Examination.—At autopsy, on external examination, the only noteworthy observations were necrotic ulcers on the palmar surface of the distal phalanges of the first, third and fourth fingers of the left hand (fig. 1). When the breast plate was removed, the contents of the thoracic cavity were presented in their normal relations. The lungs were bound down by numerous fibrinous and fibrous adhesions between the visceral and parietal pleurae, and between the parietal pleura, the pericardium and the diaphragm. The middle and lower lobes of the right lung and the lower lobe of the left lung presented numerous discrete or confluent, opaque, yellowish gray, caseous abscesses, with irregular cauliflower borders, varying from 1 to 3 cm. in diameter. The lower lobe of the right lung also presented an early lobular pneumonia, while that of the left lung showed moderate pulmonary congestion and edema. The hilar lymph nodes were moderately enlarged and presented numerous small abscesses similar to those seen in the lungs. The heart was not remarkable. The abdominal viscera were bound together by numerous superficial fibrinous adhesions which were easily broken, leaving the surface of the organs slightly dull and granular. The entire liver and spleen were studded with numerous yellowish, opaque, discrete or confluent abscesses with regular outlines, varying from 2 to 8 mm. in diameter (figs. 2 and 3). On external examination the kidneys appeared pale, swollen and flabby, and on cut section the cortices were irregularly thickened and the renal pyramids were unusually prominent. The lining of the entire gastro-enteric tract was a dull, dirty, grayish pink, and the blood vessels were markedly engorged. The serosal surface of the gastro-enteric tract was dull and granular, as previously mentioned. The pelvic organs were not remarkable except for the dull granular appearance of their serosal covering. The suprarenal glands appeared normal. The abdominal lymph nodes also appeared normal, both externally and on cut section. One enlarged epitrochlear lymph node was removed from the left arm and presented numerous abscesses similar to those seen in the hilar lymph nodes. The organs of the neck and the brain presented no noteworthy manifestations.

The anatomic diagnoses were subacute ulcers of the fingers of the left hand; multiple abscesses (tularemic) of the lungs, liver, spleen and lymph nodes; pulmonary congestion and edema with an early lobular pneumonia; fibrous and fibrinous pleuritis; fibrinous peritonitis; subacute enteritis, and toxic nephrosis.

Bacteriologic Examination.—At autopsy, material from the liver abscesses was collected by Prof. W. B. Wherry and inoculated into each of two guinea-pigs, into one cutaneously, after gentle scraping of the skin, and into the other subcutaneously. The one died on the seventh day and the other on the sixth day after inoculation. Both revealed the typical visceral lesions of guinea-pig tularemia. Pure cultures of Bacterium tularense were recovered on coagulated egg yolk from the spleen of each animal. Dermal inoculation of guinea-pigs with the growth from the egg yolk cultures produced death in six days with the characteristic plague-like visceral lesions.

Microscopic Examination.—The lungs showed discrete or confluent areas of caseous necrosis, with extensive nuclear fragmentation into numerous coarse and fine chromatin granules. In some of the larger and more advanced lesions there was moderate peripheral fibroblastic proliferation and monocytic reaction. The pulmonary tissue also showed moderate congestion and edema. A section from the lower lobe of the right lung showed a confluent lobular pneumonia in which the reaction was chiefly monocytic. The pleura was the site of moderate thickening, and an occasional polymorphonuclear leukocyte and monocyte were noted. In the liver were numerous large and small, discrete or confluent areas of caseous necrosis, with fragmentation of the nuclei into numerous coarse and fine chromatin granules. Surrounding these lesions there was a moderate monocytic reaction and some fibroblastic proliferation. Some of the younger lesions showed only a small focal area resembling caseous necrosis with scattered chromatin granules and an occasional monocyte (fig. 4). This organ also showed a moderate chronic passive congestion with atrophy of the liver cords and beginning fatty infiltration. The spleen, too, showed numerous areas of necrosis identical with those seen in the liver, and likewise intense congestion. The regional lymph nodes contained numerous areas of focal necrosis with peripheral monocytic reaction and fibroblastic proliferation, similar to the lesions previously described. The lymph follicles showed moderate rarefaction and the medulla presented focal areas of hemorrhage. There was also a moderate increase of reticulum. The mucosal surface of the gastro-enteric tract presented moderate congestion of the blood vessels and an occasional focal area of polymorphonuclear

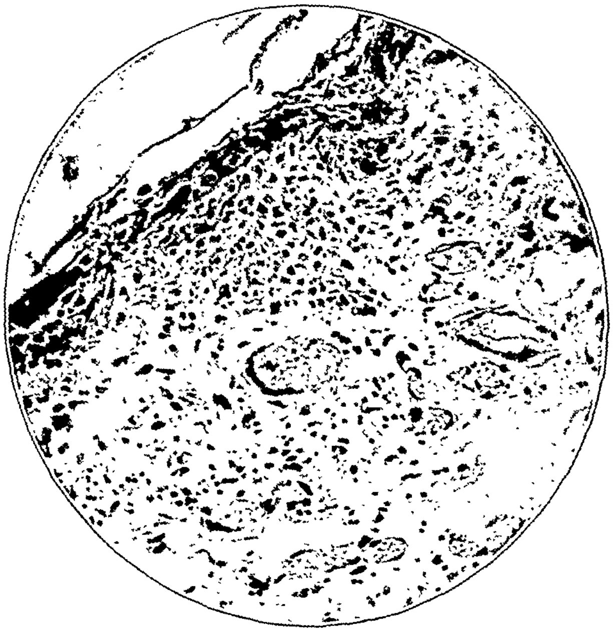

Fig. 5.—Section of serosa of intestine, showing early tularemic lesion; reduced from a photomicrograph with a magnification of 250 diameters.

and lymphocytic infiltration. The serosal surface of the gastro-enteric tract presented a generalized diffuse reaction consisting chiefly of monocytes with an occasional polymorphonuclear leukocyte lying beneath a layer of fibrinous exudate. There were also focal areas of necrosis, chromatin granules and monocytic reaction, identical with the early lesions described in the liver, spleen, lung and lymph nodes (fig. 5). The uterus was not remarkable except for the presence of an exudate on its serosal surface similar to that noted on that of the intestine. No areas of necrosis were seen. Sections of the skin from the index finger showed a small subacute ulcer in which the chief reacting cell was the monocyte. There was also an occasional small area of caseous necrosis with a peripheral area of fibrosis and monocytic leukocytosis. The kidneys showed moderate congestion and edema, with an early acute focal glomerulonephritis. Sections from the bladder showed nothing noteworthy. In sections from the heart were small focal areas of fibrosis, and the muscle fibers appeared swollen and granular. The aorta appeared normal. The suprarenal glands were not remarkable, but there was a moderate monocytic infiltration of the surrounding fat tissue. There was moderate fibrosis and fatty invasion of the pancreas. The thyroid showed focal areas of chronic inflammation. Microscopic diagnoses were subacute ulcers (tularemic) of three fingers of the left hand, with multiple abscesses (tularemic) of the lungs, liver, spleen, regional lymph nodes and serosal surface of the gastro-enteric tract; fibrinopurulent peritonitis; pulmonary congestion and edema, with terminal lobular pneumonia; subacute and chronic pleuritis; moderate fibrosis of the myocardium and toxic myocardosis; chronic passive congestion of the liver, with atrophy of the liver cords; toxic nephrosis and acute focal glomerulonephritis; chronic focal thyroiditis, and subacute gastro-enteritis.

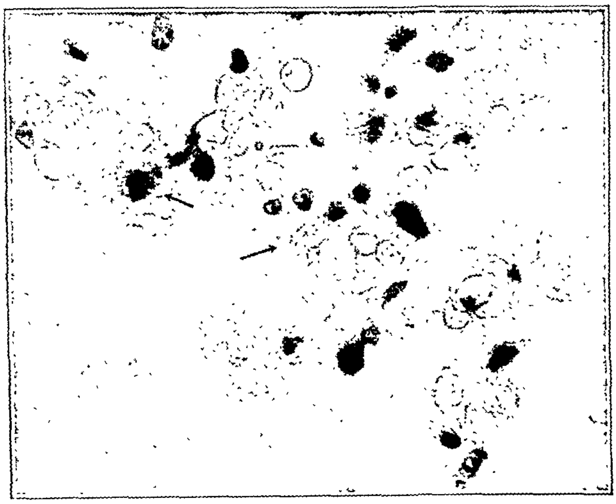

Fig. 6.—Section of lung, showing Bacterium tularense within a macrophage and also a free-lying group; nile blue sulphate stain; reduced from a photomicrograph with a magnification of 1,550 diameters.

TISSUE STAINING

One of us (L. F.) is describing elsewhere a method for staining Bacterium tularense in tissue sections. The essential feature is the use of a saturated aqueous solution of nile blue sulphate. The contrast between the stained bacteria and the cellular background leaves much to be desired, especially for purposes of photography, but the bacteria are readily recognizable.

The chief difficulty in securing good demonstrations in human tissues seems to lie, however, not so much in the color of the dye as in the nature of the pathologic processes. In most of the involved tissues from this case there was an extensive karyorrhexis. Large and small nuclear fragments usually lie wherever the bacteria are found, and the recognition of bacteria in the presence of these fragments is difficult. Occasionally, as shown in the accompanying photomicrograph of the lung (fig. 6), the bacteria occur in free clumps or groups and also within phagocytic cells. The latter distribution is almost characteristic of infected rodent tissues.

Bodies that seem with certainty to be bacteria were found only in the lung. None were found in the lymph glands, kidneys, focal necroses of the intestines, liver, spleen, suprarenal gland, pancreas, heart muscle, aorta, stomach, gallbladder, urinary bladder or brain. These tissues were fixed in Zenker's solution.

SUMMARY

A case of tularemia is reported in which: (*a*) autoinoculation of two fingers of the left hand by contact with the primary lesion on the index finger seems to be highly probable; (*b*) the use of convalescent serum was without beneficial effects; (*c*) lesions of the peritoneum, both focal and diffuse, are described for the first time, and (*d*) a new staining method revealed the presence of Bacterium tularense in tissue sections from certain of the involved organs.

CALCIFICATION IN TUBERCULOSIS OF THE SUPRARENAL GLANDS

ROENTGENOGRAPHIC STUDY IN ADDISON'S DISEASE *

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Calcification has long been accepted as evidence of chronic or of healed tuberculous infection. Although other forms of inflammation may occasionally result in calcification, in cases of tuberculosis in which the healing process lags only a little behind the destructive action of the lesion, calcification is extremely common. This was recognized, particularly in regard to lesions of the lungs and the lymph nodes, long before the advent of roentgen rays. Although calcification is not entirely pathognomonic, it almost always indicates tuberculosis, so that in the minds of physicians calcification and tuberculosis are indissolubly associated, especially during the process of healing. It would seem rational, therefore, to assume that calcification might occur in the suprarenal glands of patients with Addison's disease, as the process is frequently tuberculous.

Our interest in the possibility of revealing calcification in the suprarenal glands was aroused in 1925 by a letter from Sir Byron Bramwell,[1] who wrote:

> For more than fifty years I have been interested in Addison's disease, and four years ago I mentioned to Professor George Murray and my son, John Creighton, when going round the Manchester Royal Infirmary, that I thought the x-ray examination of the suprarenal region should disclose the ordinary tuberculous lesion of Addison's disease and would be consequently useful both for diagnosis and prognosis. So far as I have been able to ascertain from physicians and radiologists the

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* Material from thesis submitted by Dr. Ball to the Faculty of the Graduate School of the University of Minnesota in partial fulfilment of the requirements for the degree of Master of Science in Medicine, June, 1931.

[1] Bramwell, Byron: Personal communication to Rowntree.

only case which has been published is one by Sir Humphry Rolleston[2] in the *British Journal of Children's Diseases*, March, 1914.

Since that time, we have studied numerous roentgenograms with the hope of recognizing the existence of calcification, but without success until, early this year, unexplained shadows corresponding to the region of the suprarenal gland were seen in a roentgenogram taken in a case of Addison's disease.[3]

EVIDENCE OF FREQUENCY OF TUBERCULOSIS AND CALCIFICATION OF SUPRARENAL GLANDS IN ADDISON'S DISEASE

Addison,[4] in his original monograph, reported eleven cases in which necropsy revealed definite pathologic changes in the suprarenal capsules, such as "mottled with tuberculosis," "of a scrofulous nature," "cancerous deposit," and "exceedingly small and atrophied glands." With regard to his first case he said: "The suprarenal capsules were diseased on both sides, the left about the size of a hen's egg, with the head of the pancreas firmly tied down to it by adhesions." Both capsules were "as hard as stones." The accuracy of these observations of the pathologic changes which serve as etiologic factors in Addison's disease is borne out by present-day investigations, and had the rays been available in Addison's day, no doubt he would have described roentgenographic changes in his first case.

Wilks[5] denied the tuberculous nature of Addison's disease, claiming that it in itself represented a disease. Time, however, has proved the correctness of Addison's ideas as applied to most cases. The mycobacterium of tuberculosis has been revealed in sections of strumous suprarenal glands taken from a patient who had Addison's disease but whose other tissues and organs were free from tuberculosis.

Guttman,[6] in a review of a series of 566 cases of Addison's disease, found tuberculosis of the suprarenal gland to be the etiologic factor in 69.72 per cent. He recorded, in order of frequency, changes in the suprarenal glands as follows: (1) bilateral tuberculosis, (2) atrophy, (3) amyloid disease, (4) neoplasms, (5) vascular lesions, (6) fatty degeneration and (7) pyogenic infections. As rare possibilities he enumerated syphilis, metastatic lesions, pressure atrophy, hypoplasia, trauma, metaplasia of bone marrow, and so forth.

Barker[7] of the Mayo Clinic, reported on the pathologic anatomy of the suprarenal glands in twenty-eight cases in which the clinical syndrome of Addison's disease had been present. In twenty-five of these (89 per cent) the lesion was found to be tuberculous on histologic examination, and in the remaining three (11 per cent) it was found to be advanced atrophy. Our necropsy material obtained in thirty-four cases of Addison's disease revealed tuberculosis of the suprarenal glands in approximately 83 per cent.

That tuberculous lesions predominate seems unquestioned. Rolleston considered them to be "the only common cause of Addison's disease . . . the others, with the exception of simple atrophy, may be considered as very rare." Wells[8] estimated that 90 per cent of the cases of Addison's disease are the result of tuberculous destruction of the suprarenal glands and that 10 per cent are the result of atrophy.

Reports in the literature of gross calcification of the suprarenal glands in Addison's disease are not common, and the incidence in large series of cases is not given. Most textbooks on pathology admit the occurrence of calcification. In 1871, Quain,[9] in support of tuberculosis as an etiologic factor, reported the pathologic data in a case of Addison's disease as follows: "The kidneys were healthy, and to them adhered firmly the suprarenal capsules, which were cemented into a hard, calcareous mass on both sides. The condition of the calcified masses in the lungs and in the suprarenal capsules was as nearly as possible identical." Of another case of Addison's disease, seen in the same year, he remarked, "The suprarenal capsules were cretaceous."

In 1899, Bramwell[10] wrote of the pathology of Addison's disease: "In some cases gritty calcareous nodules are present in the midst of the caseous material. In long standing cases the whole capsule may be converted into a cheesy, putty-like or calcareous mass."

Seligman,[11] in 1928, reported the occurrence of four cases of suprarenal calcification in reviewing 1,185 postmortem examinations. In none of the cases had Addison's disease been diagnosed. In forty-six cases of tuberculosis of the suprarenal glands, calcification was not noted. Seligman concluded that the etiologic factor for calcification of the suprarenal glands had not been established. From this standpoint, the comparative frequency of suprarenal calcification in cats, which has been emphasized by Brüschweiler[12] and by Marine,[13] may be considered. The latter stated that the condition is always calcification, and never ossification, and that it occurs more commonly in young animals which have had distemper. The symptoms resemble those seen in suprarenalectomized cats. Marine has expressed the view that a specific toxin of distemper may produce focal degeneration and necrosis, with subsequent deposits, first of fatty compounds, which later change to carbonate and phosphate. The possibility of a specific toxin affecting the suprarenal glands in Addison's disease has been considered previously.

In Barker's report, gross calcification was associated with tuberculosis of the gland in one case; about half the substance of both glands was replaced by calcium salts.

Guttman, in his description of the usual tuberculous lesion which he found in the suprarenal glands, stated that calcification is not uncommonly seen and that formation of bone has been described.

Woolley[14] has reported heteroplastic bone and the formation of the bone marrow associated with tuberculosis in the suprarenal gland in cases of generalized miliary tuberculosis. A case is reported by Newsam [15] of a girl, aged 2 years and 7 months, who had not suffered from faulty development or serious illness until she suddenly went into coma and had convulsions of a clonic type which involved all the extremities, the body and the face. Incontinence and vomiting were also present, without apparent cause. Death followed, after many convulsions, in about fourteen hours. At necropsy, inspection of the suprarenal glands indicated that very little of the cortex remained, and that the entire medulla was replaced by calcified material. In the normal situation of the medulla there were deposits of calcium salts and also spicules of bone and bone marrow containing blood-forming cells. In certain places, the deposits of calcium salts were being replaced by bone.

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[2] Rolleston, H. D., and Boyd, E. J.: Addison's Disease in a Boy, with Calcification of the Adrenals, with Remarks, Brit. J. Child. Dis. **11**: 105-111 (March) 1914.

[3] Ball, R. G., and Lansbury, John: The Treatment of a Case of Addison's Disease with the Cortical Hormone of Swingle and Pfiffner, Canad. M. A. J. **24**: 695-697 (May) 1931.

[4] Addison, Thomas: A Collection of the Published Writings of Thomas Addison, London, New Sydenham Society, 1868.

[5] Wilks, Samuel: On Disease of the Suprarenal Capsules; or Morbus Addisonii, Guy's Hosp. Rep. **8**: 1-63, 1862.

[6] Guttman, P. H.: Addison's Disease, Arch. Path. & Lab. Med. **10**: 895-935 (Dec.) 1930.

[7] Barker, N. W.: The Pathologic Anatomy in Twenty-Eight Cases of Addison's Disease, Arch. Path. & Lab. Med. **8**: 432-450 (Sept.) 1929.

[8] Wells, H. C.: Addison's Disease with Selective Destruction of the Suprarenal Cortex, Arch. Path. & Lab. Med. **10**: 499-523 (Oct.) 1930.

[9] Quain, Richard: Addison's Disease, Tr. Path. Soc. London **22**: 280-281, 1871.

[10] Bramwell, Byron: Anemia and Some of the Diseases of the Blood Organs and Ductless Glands, Philadelphia, P. B. Blakiston's Son & Co., 1899.

[11] Seligman, Bernard: Calcification of the Suprarenal Gland, Am. J. Path. **4**: 457-461 (Sept.) 1928.

[12] Brüschweiler, H. P.: Ueber die Verkalkungen der Nebenniere der Katze, Virchows Arch. f. path. Anat. **255**: 494-503, 1925.

[13] Marine, David: Calcification of the Suprarenal Glands of Cats, J. Exper. Med. **43**: 495-499 (April) 1926.

[14] Woolley, P. G.: Heteroplastic Bone and Bone Marrow Formation Associated with Tuberculosis in the Adrenal, J. Lab. & Clin. Med. **1**: 502-508 (April) 1916.

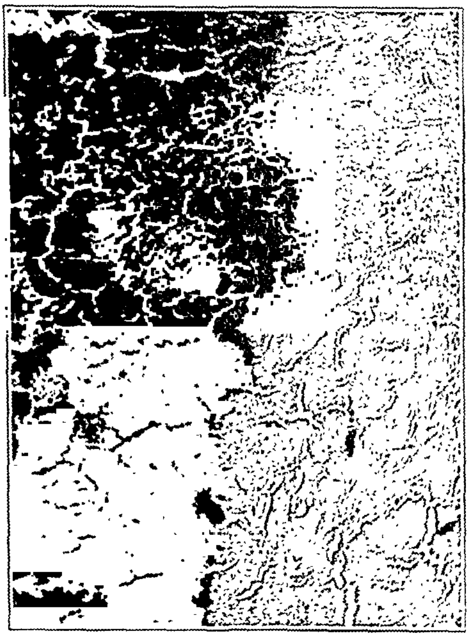

Fig. 1.—Calcification in tuberculous suprarenal gland.

Although many cases of calcification of the suprarenal glands have been reported as the result of tuberculous lesions, data have not been presented to indicate the incidence of association of these two conditions. Examination of the fresh tissue at necropsy ordinarily will disclose only gross calcareous deposits. Histologic examination ordinarily is confined to small blocks of tissue, and unless serial sections of the entire gland are made, small areas of calcification are readily overlooked. Roentgenographic examination is the best method for demonstration of calcification in soft tissues. In doubtful cases, portions in which there is increased density may then be removed, and the presence of calcification may be proved by histologic or by chemical examination. Therefore we have applied this method to study of the material available in the Mayo Clinic.

STUDY OF MATERIAL AT THE MAYO CLINIC

Pathologic Data.—The suprarenal glands were obtained in thirty-four cases which had been listed by the pathologists either as Addison's disease or as tuberculosis of the suprarenal glands. A positive clinical diagnosis of Addison's disease had been made in twenty-three of the cases, and a diagnosis of questionable Addison's disease was made in three other cases. In the remaining eight cases there were tuberculous lesions of one type or another (table 1). The presence of calcification was determined by histologic examination (fig. 1). A second group of suprarenal glands, which had been both grossly and histologically adjudged to be normal was also observed.

Roentgenologic Data.—Both groups were then subjected to roentgenologic examination. Calcification or areas of increased density were not shown in the normal glands. In the pathologic glands there was wide variation in density, with very obvious calcification in certain cases (fig. 2).

Table 1.—*Summary of Material Studied at the Mayo Clinic*

Clinical Diagnosis	Cases	Increased Density in Roentgenograms of Suprarenal Glands Obtained After Death
Addison's disease	23	6
Questionable Addison's disease	3	2
Tuberculous meningitis	2	..
Papilloma of bladder	1	1
Syphilis of the central nervous system; healed tuberculous pleuritis and lymphadenitis	1	1
Pulmonary tuberculosis	1	..
Acute suppurative pancreatitis and peritonitis; healed tuberculosis of the lungs	1	1
Tuberculous pericarditis	1	..
Tuberculosis of the right kidney	1	..
Total	34	11

In some glands there were distinct, isolated shadows indicative of sharply localized calcification. In others there was increase in density throughout the tissue, suggesting a diffuse deposition of lime salts such as could be expected with a high grade of caseation. These features were confirmed by histologic examination of the tissues, as shown in figure 1.

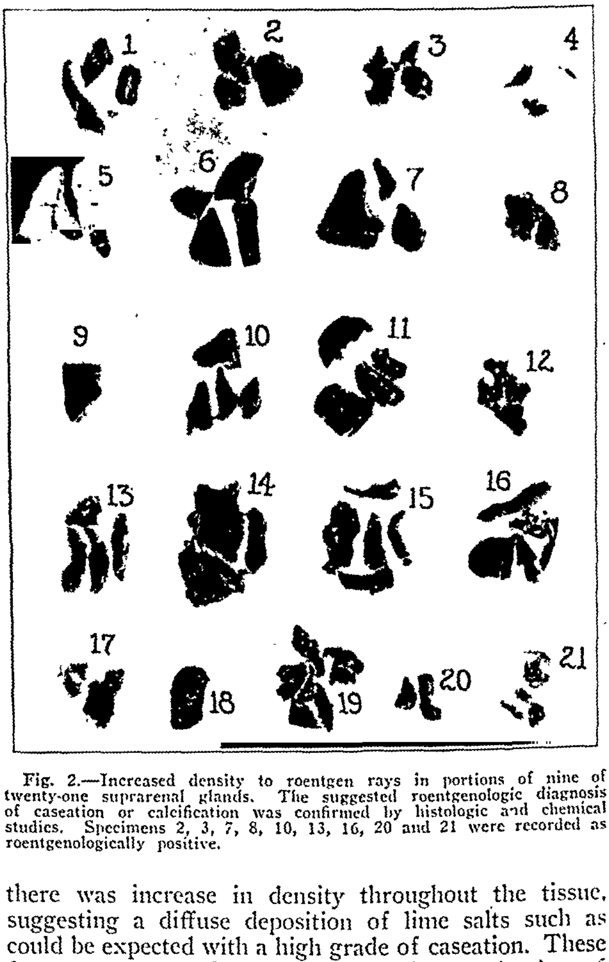

Fig. 2.—Increased density to roentgen rays in portions of nine of twenty-one suprarenal glands. The suggested roentgenologic diagnosis of caseation or calcification was confirmed by histologic and chemical studies. Specimens 2, 3, 7, 8, 10, 13, 16, 20 and 21 were recorded as roentgenologically positive.

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[15] Newsam, A. R.: Calcification and Bone Formation in the Adrenals, Rhode Island M. J. 7: 35-38 (March) 1924; abstr. J. A. M. A. 82: 1397 (April 26) 1924.

In reviewing the roentgenograms, only those glands were called positive in which in our opinion it should have been possible to demonstrate increased density during life. It is of interest that in several additional glands there were definite minute calcified portions, which, however, could not in all probability have been demonstrated in life.

Table 2.—*Chemical Analysis of Specimens of Nine Normal Suprarenal Glands*

Water, per Cent	Ash, per Cent		Calcium, Mg. in Each 100 Gm.			Phosphorus, Mg. in Each 100 Gm.			Calcium: Phosphorus Ratio
	Wet Wt.	Dry Wt.	Wet Wt.	Dry Wt.	Ash	Wet Wt.	Dry Wt.	Ash	
72.8	0.25	0.93	30	111	12.0	50	183	20.0	0.60
75.7	0.37	1.54	90	370	24.3	100	413	27.0	0.90
80.9	0.33	1.71	64	336	19.4	76	398	22.5	0.84
77.4	0.43	1.90	57	252	13.3	107	477	24.9	0.53
75.5	0.58	2.37	176	717	30.2	99	407	17.1	1.76
80.1	0.50	2.48							
83.4	0.41	2.49	62	371	15.1	101	604	24.6	0.61
82.0	0.50	2.77	93	570	19.8	120	668	24.0	0.82
83.0	0.47	2.77	69	406	14.7	113	664	24.0	0.61

Of the cases in which material was obtained at necropsy, there were twenty-three in which a positive diagnosis of Addison's disease had been made. In six of these, the glands were roentgenographically positive, an incidence of approximately 26 per cent. Of the three cases in which the diagnosis of Addison's disease had been given as questionable, the glands in two were positive, and of the remaining group of patients with miscellaneous tuberculous lesions, the glands of three were positive. There was a total, then, of eleven cases (32.3 per cent) in the entire group of thirty-four cases with roentgenographic evidence of pathologic change in the suprarenal glands, which it seemed reasonable to suppose might have been demonstrated in the living patient if careful studies had been made. Unfortunately, roentgenograms covering the region of the suprarenal glands either had not been taken or were reported negative in routine examinations, and consequently were not preserved for review.

Table 3.—*Chemical Analysis of Specimens of Twenty-Four Diseased Suprarenal Glands*

Water, per Cent	Ash, per Cent		Calcium, Mg. in Each 100 Gm.			Phosphorus, Mg. in Each 100 Gm.			Calcium: Phosphorus Ratio	Evidence of Calcification in Roentgenograms of the Suprarenal Gland
	Wet Weight	Dry Weight	Wet Weight	Dry Weight	Ash	Wet Weight	Dry Weight	Ash		
75.6	0.20	0.81	42	171	21.0	26	107	13.0	1.60	No
77.2	0.19	0.83	31	142	16.5	43	189	22.6	0.75	Yes
70.8	0.36	1.22	36	122	19.9	72	246	20.0	0.50	No
80.2	0.24	1.22	28	139	11.6	56	279	23.2	0.50	No
72.0	0.43	1.53	133	477	31.0	56	201	13.1	2.37	No
74.3	0.40	1.56	94	364	23.5	74	287	18.5	1.27	No
77.6	0.43	1.90	111	492	25.4	100	445	23.3	1.11	No
80.2	0.38	1.92	93	473	24.5	55	279	14.5	1.70	Yes
77.8	0.48	2.16	125	556	26.1	95	425	19.7	1.31	Yes
79.3	0.46	2.23	71	344	15.5	67	326	14.7	1.06	No
81.3	0.48	2.56	78	419	16.3	114	612	23.8	0.69	No
74.0	0.71	2.65	233	864	32.8	102	379	14.4	2.28	No
87.8	0.33	2.69	32	258	9.5	75	617	22.8	0.42	No
81.6	0.50	2.73	112	611	22.4	112	611	22.4	1.00	No
69.2	1.02	3.36	324	1,063	31.8	175	574	17.1	1.85	Yes
71.8	0.98	3.48	320	1,130	32.7	155	550	15.8	2.05	No
73.2	2.34	8.70	797	2,970	34.1	407	1,520	17.4	1.95	Yes
75.3	2.22	9.09	751	3,050	33.8	385	1,560	17.3	1.95	Yes
73.1	2.64	9.85	913	3,400	34.4	425	1,584	16.1	2.14	Yes
75.0	3.88	15.5	1,334	5,340	34.4	667	2,670	17.2	2.00	Yes
71.5	8.46	29.7	3,150	11,050	37.2	1,525	5,350	18.0	2.07	Yes
64.2	11.7	32.9	3,410	11,200	29.2	2,080	5,830	17.8	1.92	Yes
50.8	30.8	62.9	12,120	24,660	39.4	5,310	10,800	17.2	2.28	Yes
32.3	50.0	73.9	19,300	28,400	34.6	8,520	12,600	17.0	2.27	Yes

Chemical Data.—That the increase in density of the shadow in the roentgenograms was due to the deposition of calcium salts was further shown by chemical examination of whole glands. The material had been fixed in formaldehyde, and hence it was not possible to make correction for consequent changes in the water content of the tissue, or for the extraction of salts by solution of formaldehyde. Results for the percentage of ash, calcium and phosphate are reported in terms of the weight of the fixed tissue, the dry weight and the ash. Table 2 shows that, in normal tissues, phosphates are present in considerably greater amounts than is calcium; the maximal amount of either is 700 mg. in each 100 Gm. dry weight, with a maximal content of ash of 2.77 per cent.

The chemical analysis of representative portions of twenty-four tuberculous glands studied (table 3) indicated that the composition of fourteen fell within these normal limits. In ten glands the percentage of ash was excessive. In one of the glands in which a calcareous nodule had been dissected out for study, the content of ash increased up to 73.9 per cent of the dry weight of the tissue. In the cases in which the total ash was increased, the calcium-phosphorus ratio varied from 1.85 to 2.28, which is approximately that found in calcium phosphate and in bone. With one exception there were portions of increased density on roentgenologic examination of these ten glands. In addition, there were three other cases in which the roentgenogram gave evidence of small, localized deposits, but these apparently were too small to produce a change in the chemical composition of the gland as a whole.

ROENTGENOGRAPHIC EVIDENCE, IN LIFE, OF SUPRARENAL CALCIFICATION IN ADDISON'S DISEASE

Our observations indicated the presence of calcification in approximately a third of tuberculous suprarenal glands. This immediately raises the question of the roentgenologic demonstration during life from the standpoint of diagnosis and prognosis. In this connection the literature reveals that Rolleston and Boyd in 1914 first observed calcification in the region of the suprarenal glands in a boy, aged 12 years and 9 months, whose history of pigmentation and symptoms dated from ten to twelve months prior to the time of examination. The roentgenographic report, by Melville, reads: "There are very definite calcareous particles in the region of the last rib and suprarenal body on the right side, less definite on the left. There are discrete and dense opacities at the hila of the lungs, suggesting calcified nodules." Rolleston in his discussion of the case expressed the opinion that the suprarenal calcification pointed to obsolete tuberculosis and that this was in accordance with the negative Pirquet reaction which was obtained. He further presumed that the cicatricial contraction in the calcifying suprarenal glands, rather than active tuberculosis, was responsible for the recent appearance of symptoms of Addison's disease.

In 1928, Gellerstedt and Hjelm[16] reported the case of a boy, aged 6 years, in whom they observed roentgenographically a fine coral-like shadow of calcification above the right kidney. At necropsy the deposit of calcium was found to be present in a ganglioneuroma of the suprarenal gland.

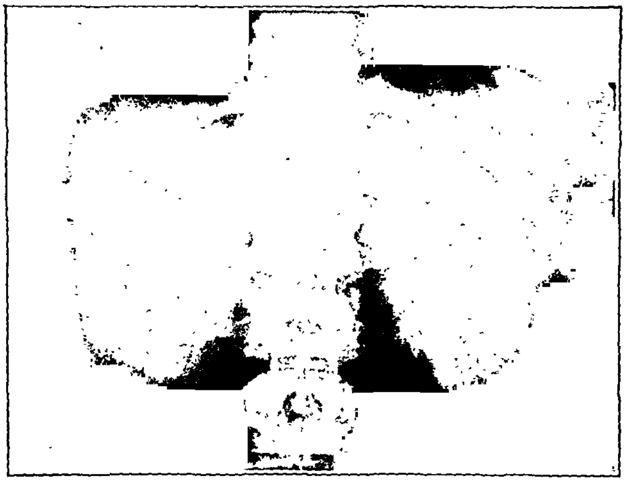

Fig. 3 (case 1).—Shadows in regions of left and of right suprarenal glands.

In 1930, Pescatori[17] reported a case with the clinical syndrome of Addison's disease, in which he was able to demonstrate in the roentgenogram what appeared to be small deposits of calcium salts in the left suprarenal gland. In this article he cited two cases of Addison's disease reported by Perussia, in which suprarenal shadows of calcification were observed. In one of these cases the calcification of the suprarenal gland was confirmed at necropsy.

Additional cases of Addison's disease, in which the roentgenogram contained shadows in the region of the suprarenal glands, have been reported by Thompson,[18] by Schatzki,[19] and by us.[20] Since our first report, we have been informed of similar observations by Snapper,[21] Allbright[22] and Bell.[23]

It is our purpose to present six additional cases of Addison's disease in which roentgenographic shadows in the region of one or of both suprarenal glands have been observed. Detailed accounts of these cases and their response to treatment have been previously reported by us.[24]

REPORT OF CASES

Case 1.—A man, aged 20, who was admitted to the Mayo Clinic, Dec. 31, 1930, complaining of weakness and pigmentation of the skin, appeared to be exhausted. The skin was of a light olive color, with darker, mottled areas on the exposed surfaces, about the pelvic girdle, and on the extensor aspect of the arms. The nipples were almost black, and the genitalia and anus were deeply pigmented. There were a few scattered freckles, and some pigmented areas on the palms, soles and buccal mucous membrane. The skin was smooth, unwrinkled, and of a silky texture. Roentgenograms of the thorax gave evidence of old tuberculosis of the right upper lobe. In roentgenograms of the kidneys there were bilateral shadows in the suprarenal regions (fig. 3). A clinical diagnosis of Addison's disease was made.

Case 2.—A man, aged 45, who came to the clinic with the chief complaint of having felt exhaustion for two or three years, was poorly nourished and had marked, diffuse pigmentation of the skin. There was increased mottling and freckling on the exposed surfaces, and a great deal of pigmentation around the lips and mouth. Roentgenographic examination disclosed well marked bilateral shadows in the region of the suprarenal glands (fig. 4). A clinical diagnosis of Addison's disease was made.

Case 3.—A woman, aged 62, brought to the clinic by her son, a physician, who had made a diagnosis of Addison's disease, had been in good health until nine months before, when darkening of the skin over the face and hands had been noted by her husband. She was poorly nourished, with deep brownish-olive pigmentation of the entire skin, somewhat deeper over the exposed surfaces. There were a few dark brown scattered freckles. The buccal mucous membrane contained numerous patches of brown pigment.

Roentgenologic studies of the thorax gave negative results, but roentgenograms of the region of the suprarenal glands disclosed a definite shadow on the right side (fig. 5).

Case 4.—A man, aged 26, who was admitted with a complaint of weakness and dyspnea on exertion, was well developed, with diffuse, olive tan pigmentation over the entire body, and a deeper brown coloring of the nipples, genitalia, axillae, and an abdominal surgical scar. Pigmentation of the mucous membrane of the mouth could not be found. Numerous scattered brown and black freckles were present over the face and arms, and a small area of brownish pigmentation was seen in the sclera of the right eye. Roentgenograms of the region of the suprarenal glands disclosed no abnormality on the left side but a small area of increased density on the right (fig. 6).

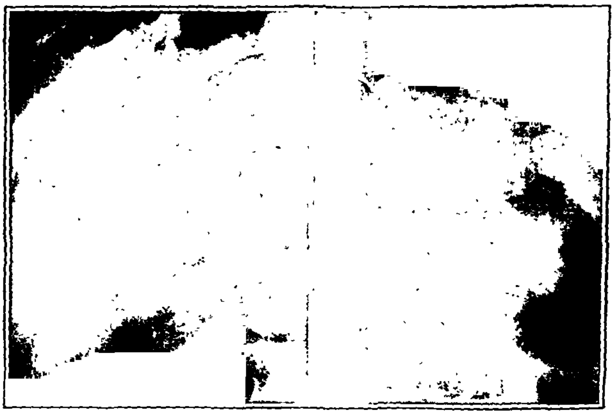

Fig. 4 (case 2).—Shadows in regions of left and of right suprarenal glands.

Case 5.—A man, aged 49, who came to the clinic complaining of fatigue and generalized brownish pigmentation of the skin, presented definite accentuation of the color about the genitalia, anus and axillae. There was diffuse pigmentation of the mucous membrane of the mouth and scattered areas on the lips. Numerous black freckles were present, particularly over the arms. A faint roentgenologic shadow of calcification was apparent *in the region of the left suprarenal gland*, with less distinct calcification on the right (fig. 7).

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[16] *Gellerstedt, H., and Hjelm, R.: Zur Kasuistik der Nebennierentumoren*, Uppsala Läkaref. Förh. **34:** 271-288 (June) 1929.

[17] Pescatori, G.: Valore della esplorasione radiologica delle ghiandole surrenali nella malattia di Addison, Arch. di. radiol. **6:** 364-372 (March-April) 1930.

[18] Thompson, T.: Addison's Disease: Value of Radiography in Direct Diagnosis, Lancet **2:** 785-787 (Oct. 11) 1930.

[19] Schatzki, R.: Röntgen-diagnose der Nebennierentuberkulose, Röntgenpraxis **2:** 1130-1132 (Dec. 15) 1930.

[20] Greene, C. H.; Rowntree, L. G.; Swingle, W. W., and Pfiffner, J. J.: Metabolic Studies in Addison's Disease: The Effect of Treatment with the Cortical Hormone of the Suprarenal Gland, Am. J. M. Sc., January, 1932.

[21] Snapper: Personal communication to the authors.

[22] Allbright: Personal communication to the authors.

[23] Bell: Personal communication to the authors.

[24] Rowntree, L. G.; Greene, C. H.; Ball, R. G.; Swingle, W. W., and Pfiffner, J. J.: Treatment of Addison's Disease with the Cortical Hormone of the Suprarenal Gland: *Summary of Immediate Results in* Twenty Cases Treated with the Preparation Made by Swingle and Pfiffner, J. A. M. A. **97:** 1446 (Nov. 14) 1931.

Case 6.—A woman, aged 22, who came to the clinic complaining of weakness, periods of nausea with some vomiting, and marked brownish pigmentation of the skin, had considered herself in excellent health until four months previously. Examination disclosed diffuse cutaneous pigmentation, which was accentuated about the genitalia, anus, axillae and nipples, and points of pressure on the feet. Patches of pigmentation were present on the lips, gums and buccal mucous membrane. The systolic blood pressure was recorded as 75 and the diastolic as 55 mm. of mercury. A clinical diagnosis of Addison's disease was made. Roentgenograms of the suprarenal regions revealed marked bilateral calcification (fig. 8).

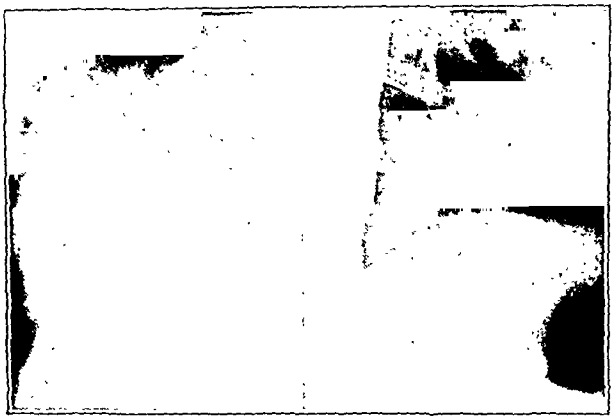

Fig. 5 (case 3).—No shadow in left suprarenal region, but shadow present in corresponding region on right side.

ROENTGENOSCOPIC OBSERVATION, IN LIFE, OF SUPRARENAL CALCIFICATION IN ADDISON'S DISEASE

Calcification in the suprarenal regions was very distinct in the roentgenograms of case 6. Study of the roentgenograms suggested the possibility, not only of determining the normal range of motion of these glands, but also of their observation under the roentgenoscope. A roentgenogram was taken during expiration with the patient lying on her back. The gland on the right side was somewhat lower than that on the left, the upper border appearing at the level of the middle portion of the twelfth thoracic vertebra, the lower border extending down to the middle portion of the body of the first lumbar vertebra. The medial border was in juxtaposition to the spine. The gland on the left side lay 1.5 cm. higher, with its medial border along the lateral edge of the psoas muscle. During deep inspiration both glands descended 2 cm. caudally.

The patient was observed under the roentgenoscope. The left suprarenal gland could not be distinguished with certainty, but the right was distinctly seen. It was observed to descend caudally during inspiration and to ascend to its original position with expiration. The movement of the gland during the respiratory cycle was marked on the roentgenoscopic screen and traced on paper. The position of the gland and the extent of its movement corresponded precisely with that observed in the roentgenograms.

This, so far as we know, is the first time that the suprarenal gland has been observed fluoroscopically. Because of the calcification in this patient with Addison's disease, we were able not only to visualize the gland, but also to determine the change in its position during inspiration and expiration.

ROENTGENOGRAPHIC EVIDENCE OF SUPRARENAL CALCIFICATION WITHOUT ADDISON'S DISEASE

In order to ascertain the incidence of shadows in the region of the suprarenal glands in the absence of Addison's disease or of tuberculosis, a series of 300 roentgenograms of patients of varying ages, and with miscellaneous complaints, was carefully reviewed. In one instance a shadow was observed in the region of the left suprarenal gland. The patient was a man, aged 23, whose condition had been diagnosed as "functional enuresis" and dipsomania. No mention was made of pigmentation, exhaustion or gastro-intestinal complaints. Tuberculous lesions were not found. The blood pressure was 100 systolic and 70 diastolic.

A roentgenogram of a patient suffering from disease of the gallbladder and from obesity was recently called to our attention. There was what appeared to be a definite area of increased density in the right suprarenal region. A clinical diagnosis of Addison's disease could not be made. However, because of the evidence of a lesion in the region of the right suprarenal gland, this patient might be considered as being in the preclinical stage of Addison's disease stressed by Rowntree, Greene, Swingle and Pfiffner. We have previously pointed out the danger of operative and surgical procedures of any kind in a case of Addison's disease. In cases such as this, evidence of lesions of suprarenal glands must be considered in evaluating the operative risk, and, if operation should be undertaken, a prophylactic or supporting course of treatment with cortical hormone would be desirable.

Because of the intimate association of tuberculosis elsewhere with similar lesions in the suprarenal glands, a group of 100 pyelograms of tuberculous kidneys was studied. In one case a shadow was seen in the region of the left suprarenal gland; the patient, aged 41, had tuberculosis of the left kidney and old pulmonary tuberculosis. There was nothing in the history to suggest suprarenal insufficiency. Left nephrectomy was performed and convalescence was satisfactory, which emphasizes the fact that a unilateral lesion does not necessarily mean suprarenal insufficiency.

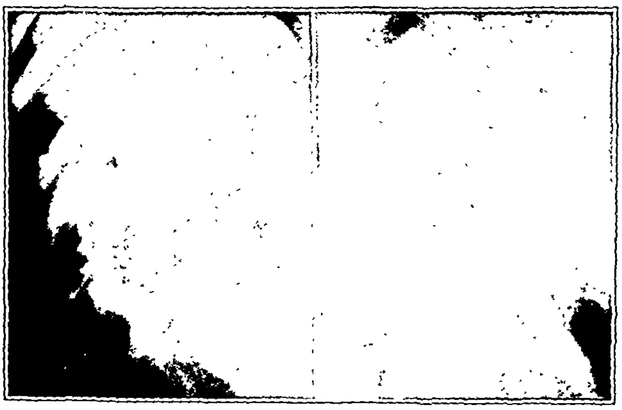

Fig. 6 (case 4).—No shadow in left suprarenal region, but small shadow in corresponding region on right side.

The roentgenograms of thirty-five patients with Pott's disease of the spine were also reviewed, and in this group no shadows in the region of the suprarenal glands were observed.

We report a fourth case, which is interesting because, from the clinical standpoint, pathologic changes in the suprarenal glands were suspected, and when roentgenograms were obtained there was evidence of increased density on the right side:

A woman, aged 25, who came to the clinic with a chief complaint of headache and head noises had undergone thyroidectomy three months prior to admission, although no history of hyperthyroidism could be elicited. Since the operation, she had complained of a variety of bizarre sensations but particularly of headaches and head noises. The headache was described as a sensation of pressure, practically constant, which involved the entire head. The head noises were likened to whistling, the ringing of curfew bells, or a roaring sound. She had a very definitely masculine appearance. Her mother, when questioned, felt that she could not be sure that the patient had become so recently, but she was positive that the growth of hair about the breasts and abdomen had developed in the last five years. Menstruation had begun at the age of 12 years and had been normal until two years prior to admission, but flow had been very scanty since. The mother stated that the girl had always been quiet and studious, had had no interest in boys, and from an early age wanted to enter the convent. There were many coarse black hairs over the jaw, chin and upper lip. The breasts were small and the nipples surrounded with hair. The pubic hair was thick and coarse, of masculine distribution, and extended in the median line to the umbilicus. The forearms and legs were also hairy. There was no abnormality of the external genitalia. The skin was dry and flaky. A scar left after thyroidectomy was present, and no thyroid gland could be palpated. The right ear appeared to be totally deaf, and hearing in the left ear was markedly diminished. Examination of the eyes gave negative results. A right rectus operative scar was present. An indistinct mass could be palpated in both renal regions but could not be identified; there was definite tenderness on the left side. The reflexes were active. Neurologic examination was essentially negative. The patient apparently suffered from an anxiety neurosis.

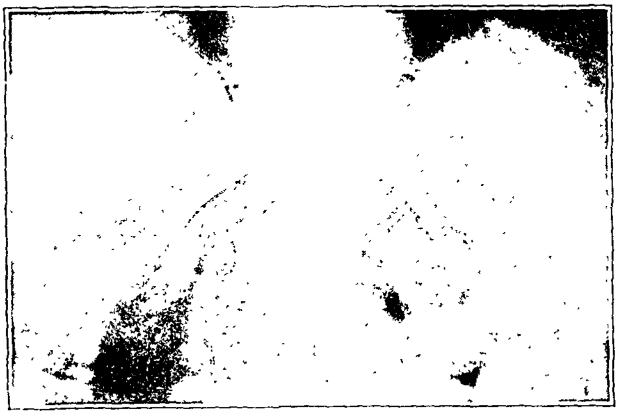

Fig. 7 (case 5).—Shadow in the left suprarenal region; no shadow in corresponding region on right side.

Urinalysis and the Wassermann test of the blood gave negative results. The number of erythrocytes and leukocytes and the chemical values of the blood were repeatedly normal. The basal metabolic rate ranged from —15 to —5. Testing of the renal function gave satisfactory results. Roentgenograms of the head and thorax were negative. Roentgenograms of the kidneys, ureter and bladder disclosed sacralization of the last lumbar vertebra on both sides, and spina bifida occulta of the sacral segment. The kidney shadows were of normal size. A roentgenogram of the suprarenal areas revealed increased density in the region of the right suprarenal gland. This raised the question of a possible tumor of the suprarenal gland, but the severity of symptoms did not warrant immediate exploration.

COMMENT

It would appear from our study that lesions of the suprarenal glands are roentgenographically demonstrable in a certain proportion of cases in which there is tuberculous involvement. The more chronic pathologic changes, with fibrocaseation or calcification, appear to be most easily demonstrated roentgenologically. In the majority of cases the active disease process probably destroys sufficient cortical tissue to cause death before fibrocaseation or calcification occurs. In the cases of Addison's disease due to simple cortical atrophy, the roentgenograms obviously would be negative. From a clinical consideration of the group of cases that is sometimes called "borderline" or "questionable" Addison's disease, positive roentgenographic evidence would be a valuable link in the chain. It would seem advisable, in that group of cases in which many symptoms of Addison's disease are present and yet in which the clinician hesitates to make a diagnosis of Addison's disease, carefully to study the suprarenal region roentgenologically.

Roentgenologic demonstration of calcification in the region of the suprarenal glands may be of diagnostic significance in a case of suspected or questionable Addison's disease. On the other hand, it must be remembered, as shown in table 1, that suprarenal tuberculosis of marked degree, especially if unilateral, may be present without sufficient clinical evidence of suprarenal insufficiency to warrant a diagnosis of Addison's disease.

In cases in which the diagnosis of Addison's disease is unquestioned and there is a definite history or evidence of tuberculous infection, the lesion in the suprarenal glands is almost certainly of a tuberculous nature. It has been observed, by Rolleston and by Bramwell, that the cases with active tuberculous etiology respond less satisfactorily to treatment than do those with simple atrophy. This is the impression we have obtained. If active lesions are present in the lungs, we attempt to arrest or heal them. A similar attempt might be considered in regard to the suprarenal glands, although Rolleston's case should be kept in mind, in which the cortical insufficiency was attributed to cicatricial contraction in the calcifying glands. Final conclusions cannot be drawn from observation of only six cases, but the advisability of attempting to promote healing by means of such measures as a dietary regimen, viosterol, calcium, the judicious use of parathyroid extract or roentgen rays is to be considered. The results might be studied by making roentgenograms of the suprarenal regions during and after treatment.

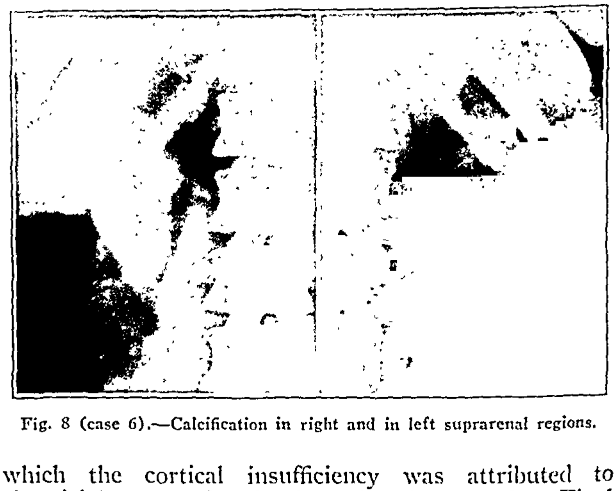

Fig. 8 (case 6).—Calcification in right and in left suprarenal regions.

In reporting six cases of Addison's disease with roentgenographic shadows in the region of the suprarenal glands, we hope that further interest will be aroused in the subject. From a study of the available pathologic material it appears probable that in a considerable percentage of cases calcification is present and that this can be roentgenologically demonstrated in life. It is suggested that such a demonstration may be of diagnostic and prognostic significance, and it is urged that roentgenographic studies be made in cases of suspected or proved Addison's disease.

DIVERTICULA OF STOMACH AND SMALL INTESTINE *

AMBROSE L. LOCKWOOD, M.D., C.M., F.A.C.S., F.R.C.S. (Cam.)
TORONTO

Gastric diverticulum is a rare condition but does occur, about forty-five cases having been reported in the literature. The majority have been found on the posterior wall of the stomach, close to the lesser curvature and the cardio-esophageal juncture and in such a position are as a rule inaccessible to surgical treatment. A small percentage have been found close to the pylorus on the posterior wall. Only one case has been reported on the greater curvature, and one on the anterior surface of the stomach. The condition causes distress simulating a gastric ulcer, and the diagnosis depends on thorough fluoroscopic examination.

Because of the inherent tendency of irritative lesions of the stomach to develop into malignant conditions, and because of the fact that three cases at least of carcinoma developing in diverticula have been reported, the condition should undoubtedly be dealt with surgically if it can be readily approached. Otherwise, a dietary regimen must be relied on.

MECKEL'S DIVERTICULUM

I will point out briefly the advisability of searching for Meckel's diverticulum at operation in all patients with atypical abdominal distress, particularly in interval appendectomies and in upper abdominal procedures in which the symptoms point to a small bowel problem but in which at operation not enough pathologic change is found to account for the patient's history of distress. I recently experienced the pleasure of finding a large, inflamed Meckel's diverticulum in a patient explored for atypical discomfort in the upper part of the abdomen, but without any pathologic condition being found until the small bowel was followed down, and an acutely involved Meckel's diverticulum was found. A careful history of the symptoms will often point to such a possibility, as it did in this case.

DUODENAL DIVERTICULA

I wish particularly to call attention to the question of duodenal diverticula. Although for many years diverticulum of the esophagus and the bladder, and Meckel's diverticulum have been recognized and dealt with surgically, duodenal diverticulum, an equally distressing condition, occurring more commonly, has been relatively overlooked all these years as a surgical entity

Prior to 1912, not more than 100 cases had been reported, and these were discovered at operation or necropsy. Case,[1] of Battle Creek, was the first to diagnose the condition roentgenologically, and in 1913 he reported four cases. In 1920, he could find only eighty-five cases so diagnosed. MacLean,[2] an astute surgeon of Winnipeg, reported sixteen cases in 1923, of which four were dealt with surgically The Mayo Clinic reported nineteen cases, discovered at operation or necropsy.

Up to the present, approximately 357 cases have been diagnosed roentgenologically, and sixty-six patients have been operated on. At the Lockwood clinic, fifty-one cases have been diagnosed roentgenologically and twenty-two of these have been dealt with surgically, and it is my firm conviction that at least thirty-eight patients should have been so treated and will yet return for surgical intervention. Various authors report the incidence of duodenal diverticula as 2.2 per cent of routine necropsies. We have found them in approximately 1.7 per cent of routine gastro-intestinal roentgenologic examinations.

Duodenal diverticula are probably of two types, congenital and acquired. The so-called congenital or developmental type occurs within 3 cm. of the ampulla of Vater, usually proximal to it, about the opening of the common bile duct and as such frequently involves the head of the pancreas. They possibly occur in Keith's weak points in the bowel or in the congenital buds of Lewis and Thyng. The mucous and submucous coats are involved. It is a question whether many so placed demand surgical treatment.

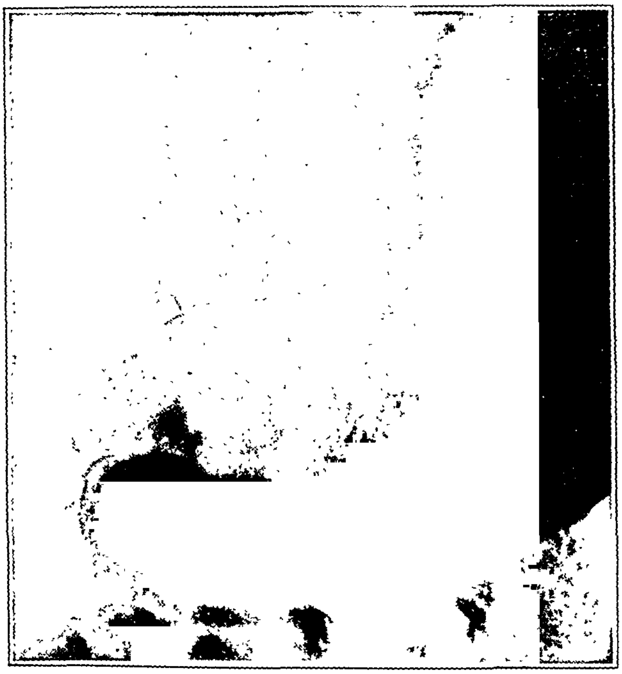

Fig. 1 (Mrs. H. V.).—Duodenal diverticulum of first part with partially loculated sac, associated with pain after eating. The patient was operated on and the sac found, freed and resected

The acquired type has generally been supposed to be due to a "blow-out" from pressure within the bowel, of the contracting scar tissue about a healed ulcer. A hernia occurs with pouch formation. The pouches become globular in outline and on being followed roentgenologically they are seen to enlarge gradually.

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* Read before the Section on Gastro-Enterology and Proctology at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 12, 1931.

[1] Case, J. T.: Diverticula of Small Intestine, Other Than Meckel's Diverticulum, J. A. M. A. 75: 1463-1470 (Nov. 27) 1920.

[2] MacLean, N. J.: Diverticulum of the Duodenum, with Report of a Case in Which the Diverticulum Was Imbedded in the Head of the Pancreas, and a Method for Its Removal, Surg., Gynec. & Obst. 37: 6-13 (July) 1923.

All the coats of the bowel are involved so that only the mucous and serous coats remain intact, and ulceration and perforation have been found in them. Although it has been supposed that they develop from the border of a healed or healing duodenal ulcer, nearly three fifths have occurred in the second portion of the duodenum, and one fifth in the third portion, where ulcer is not commonly found. They must not be conflicted with the pouching that takes place with some penetrating duodenal ulcers. None of the latter are included in our cases. In addition, signs of an old scar at the ostium have not been found in any of our cases at operation. It is more probable that they occur about the blood vessels as they enter and leave the coats of the intestine. The great majority develop on the inner curvature of the bowel, just posterior to the reflection of the peritoneum. Two of our group have been found on the outer curvature of the second portion, and one directly anteriorly on the second part. On the third part they were found on the upper border and tend to fall down behind the intestine. All have been retroperitoneal except the one on the anterior aspect of the second part of the duodenum.

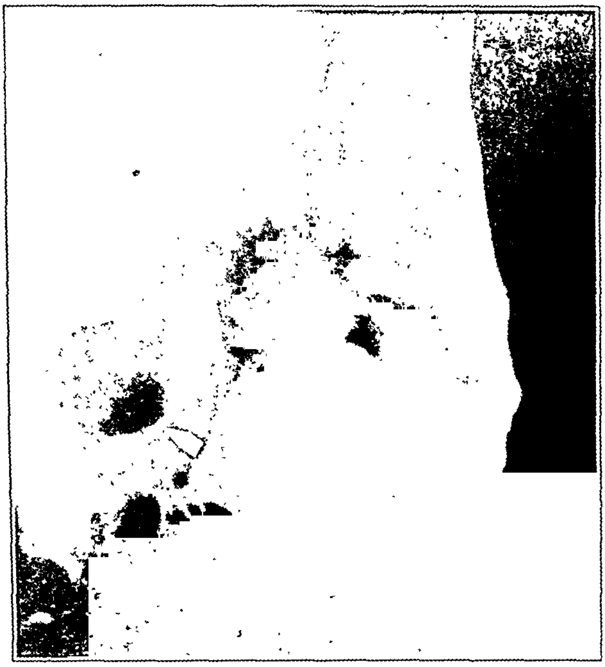

Fig. 2 (A. E.).—Duodenal diverticulum of the second part; nineteen years' history of abdominal trouble, including a gastro-enterostomy which failed to give relief. The patient was operated on and the diverticulum was dissected out and removed. Since operation she has been entirely free from trouble.

They vary in size from not more than 1 cm. in diameter to from 8 to 10 cm. in diameter. One has been reported which was found at necropsy, opening from the inner border of the second portion and hanging over the brim of the pelvis, that contained more than 1,000 cc. of fluid. Approximately three fifths were single and two fifths were multiple. They may have a small opening into the bowel with a long neck to the sac, or they may have a wide ostium that readily admits one or two fingers. In the first portion of the bowel a wide opening is more common, whereas in the second and third portions a narrow opening is found. They may occur at any age but are more common in patients past middle age.

SYMPTOMATOLOGY

A definite symptomatology is being developed for the condition. Patients complain of pain in the epigastrium directly over the diverticulum immediately after eating. The pain varies in type and intensity, depending on the site of the diverticulum, the size of it, whether or not ulceration, perforation or retention exists, and the nature of the foods ingested. The pain is frequently quite severe and is associated with a sense of fulness and distention locally, but without bloating, as seen in cholecystitis. Patients frequently complain of a bursting sensation about the area of the sac. Deep soreness usually is complained of and may be transmitted through to the back. Patients can usually place a finger directly over the site of the pain. When two diverticula are present they will invariably designate the two distinct sites of the pain. The history of pain and soreness extends over many years. There are no periods of well being as with duodenal ulcer. The "pain, food-ease" syndrome of duodenal ulcer does not exist. The pain may be relieved somewhat by the belching of gas and the taking of soda but is more completely relieved by vomiting, which is frequently induced. Patients dread food and avoid it, and are better when they have not eaten at all. As a result, the majority of patients have lost weight, become anemic, are generally debilitated, and develop that peculiar distressing mental outlook that characterizes patients who for a long time have not been able to eat the types of food they enjoy.

The pathognomonic symptoms are as follows:

1. A long history of epigastric distress without periods of well being.
2. Pain (*a*) always in the same position; (*b*) aggravated by food immediately after eating; (*c*) relieved only by vomiting, belching of gas, or the avoiding of food; (*d*) of a bursting type directly over the sac.
3. The finding of the diverticulum roentgenologically.

ROENTGENOLOGIC EXAMINATION

The symptoms point to the condition, but expert fluoroscopic examination must be relied on for actual diagnosis and localization of the sac. The duodenum should be thoroughly filled with barium throughout, and a careful search made for diverticula. When the sac is localized, its position and size and the exact site of the ostium should be determined. Plates should then be taken to confirm the diagnosis and for record purposes. Retention has been repeatedly demonstrated in the sac. Patients should be examined for retention at the end of twenty-four and forty-eight hours. Some roentgenologists have advised the filling of the duodenum through a duodenal tube passed well into the bowel. This procedure would be valuable for studying the diverticulum and has the advantage of permitting the duodenum to be filled without any barium in the stomach to obscure the field. It would be particularly useful in diverticula of the third portion of the bowel.

COMPLICATIONS

The condition is frequently associated with cholecystitis, duodenal ulcers and recurring appendicitis.

Ulceration, bleeding and perforation of the sac may occur. I have previously reported the perforation of a diverticulum on the outer curvature of the second portion into the gallbladder and colon while the patient was on a dietary regimen. The patient, a man, aged 63, was very ill for six weeks, but surgical intervention was ultimately successful.

TREATMENT

In our experience the treatment should be surgical if distress persists in spite of adequate dietary control. Diet may benefit the condition somewhat but does not cure it. Frequently, patients are not relieved at all by a dietary regimen. Patients with retention in the sac rarely respond to medical care. Ulceration, bleeding and perforation have occurred while patients were on palliative treatment.

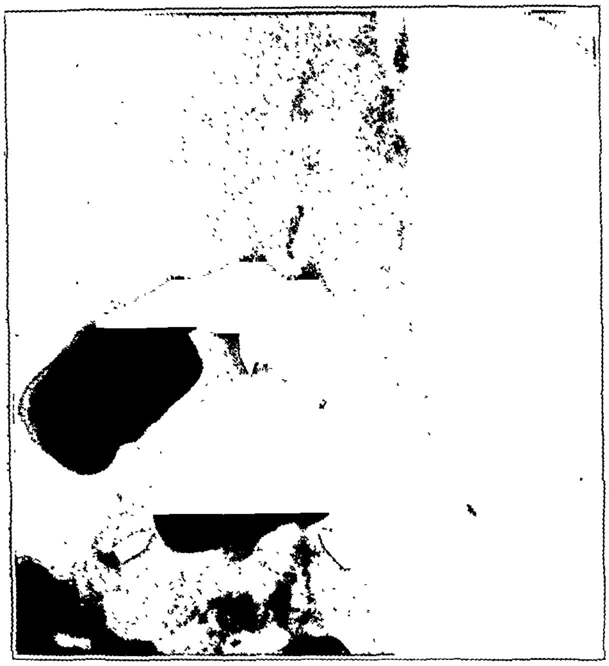

Fig. 3 (H. T.).—Duodenal diverticulum of the second and third parts. The patient, aged 78, with twenty years' history of "stomach trouble," had had extensive dietetic treatment, which failed. She insisted on operation. The diverticula were easily located and excised. She has had complete relief since.

Surgical treatment consists in dissecting and freeing the sac; the neck of the sac is then crushed in a pair of curved forceps, and ligated, the sac is severed and the pedicle is oversewed and buried.

The roentgenologist should be present at the operation and be prepared to designate the exact location of the diverticulum. Blood vessels are distributed over the sac, materially facilitating recognition of the diverticulum at operation. If a sac in the first or second portion of the duodenum is not readily discovered at operation, a small incision should at once be made in the duodenum, a finger inserted, and the opening into the sac located from within the bowel. The finger is then passed into the ostium, which simplifies the freeing of the sac from its attachments. Great care must be taken in freeing the sac, as the wall is so thin. Thanks to the valuable suggestion of MacLean,[2] a diverticulum on the third portion of the duodenum can readily be exposed by elevating the transverse colon and mesocolon, and, by making a small opening at the reflection of the peritoneum posteriorly, one comes directly on the duodenum. In this position, the diverticulum comes off the upper posterior border of the bowel, retroperitoneally, and drops behind the duodenum. The sac should be exposed from above, dissected free, and then removed. While it was suggested that a drain should be left down to the third portion of the duodenum, I think it is unnecessary and should be avoided.

Occasionally if a duodenal ulcer is present and the sac is on the first portion of the duodenum, it may be advisable, if the sac is small, to rely on a gastro-enterostomy to relieve the distress rather than to extend the operation by dissecting out the sac as well.

Patients are immediately relieved of their complaint by surgical treatment. We have had no deaths, serious postoperative sequelae, or recurrences of the diverticula.

CONCLUSION

This interesting subject, which has been largely overlooked, is a definite pathologic entity, is distressing in a high percentage of cases, and responds somewhat to dietary treatment; *but it frequently requires surgical* measures for complete relief. It should be sought for in all routine gastro-intestinal roentgenologic examinations, and particularly in all patients with atypical distress of the upper part of the abdomen. It occurs particularly in patients past middle life; it is a progressive condition, and spontaneous cures do not occur.

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ABSTRACT OF DISCUSSION

Dr. Lewis Gregory Cole, New York: I first observed this lesion in 1910 and described it as dilatation of the ampulla of Vater. Case set me right on this as being a diverticulum perivaterans. By 1921 Roberts and I had assembled thirty-seven cases, eliminated from this statistical study. These are now found so frequently that unless the stoma points up and the pouch contains barium for a long time they are not considered of clinical significance. The speaker maintains that this lesion causes the bursting sensation. My patients do not complain of a bursting sensation. So insignificant a lesion should not lead to so serious an operation with so high a mortality.

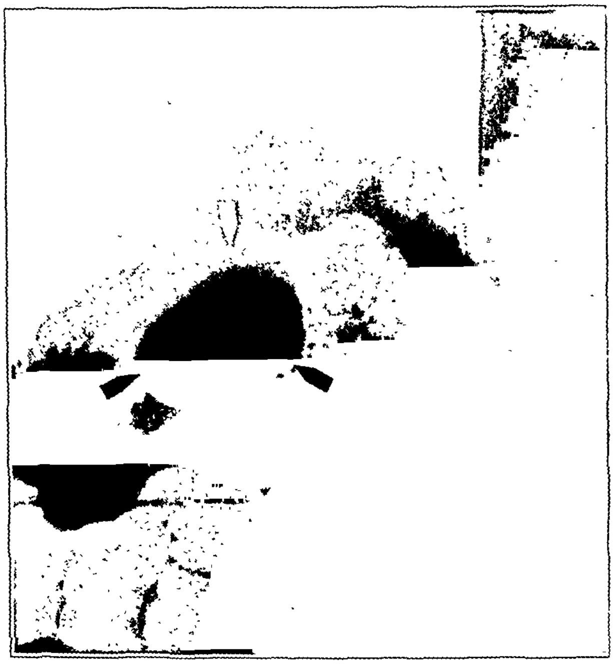

Fig. 4 (O'L.).—Duodenal diverticulum of the second part with ulcer of the first part; symptoms those from the ulcer; six hour retention in the sac. Operation was performed and gastro-enterostomy done. The sac was large and thin-walled and was invaginated and oversewed.

Dr. Fred W. Rankin, Rochester, Minn.: In the course of routine colon examination, that is, examination of colons of people who have symptoms referable to their intestine, one sees in 5 per cent of the cases a single diverticulum or multiple diverticula, and these are *mostly* in the sigmoid. In the left colon they are less frequent and in the cecum they are rare; in the small intestine they occur sporadically throughout its entire length but in nothing like the number in the colon. I think that as one approaches the duodenum they probably occur more frequently than in the jejunum and the ileum and very rarely in the stomach, and quite rarely in the esophagus. I have followed the usual custom of dividing these sacculations into the congenital and the acquired variety. In the course of a routine examination at necropsy over a period of two years, Robertson found that the incidence of the so-called developmental or congenital variety of duodenal diverticula was a little over 2 per cent. In no case of the twenty-six diverticula discovered during this period of examination and reported by Nagle in 1924 was there any evidence of associated inflammatory lesion in the diverticulum. In a relatively large series of gastro-intestinal operations I have had only nineteen cases of diverticulum of the duodenum in which exploration has been done and I think I am correct in saying that all of these nineteen explorations were made for symptoms which I believe to be due to other organic lesions rather than the diverticulum. In this group of nineteen cases, fourteen were associated with duodenal ulcer which I assumed was the cause of the lesion; three of them were associated with cholecystitis with stones, and in the remaining case there was a fistula formation between the gallbladder and the duodenum. This acquired variety I think is almost invariably due to scar tissue formation, scar tissue contraction. It always occurs on the inner border of the duodenum, and the pull from the contraction of the duodenal ulcer, which in most instances is situated on the opposite border, is sufficient to produce the pouching as it is found. Pathologically these acquired diverticula of the duodenum always contain the four coats of the bowel in contradistinction to the congenital type, which runs true to form throughout the entire gastro-intestinal tract and is a hernia of the mucosa and submucosa through the musculature of the bowel wall. It is a good rule to follow, in a diverticulum anywhere in the gastro-intestinal tract, that surgery should be advocated for the extirpation or relief of symptoms only in the presence of complications. I have long since given up extirpations of the large intestine for those not producing symptoms, and my own experience with the diverticula of the stomach is limited to one case. I have not operated on a duodenal diverticulum for symptomatology except in the presence of a duodenal ulcer.

Dr. Ambrose L. Lockwood, Toronto: In the twenty-two cases in which operation has been performed in this group, in only two was there sufficient gallbladder disturbance to justify removal. One patient had stones and the other did not. Of the whole group only three had duodenal ulcers, with no complications whatever. I have been for twenty years greatly interested in gastro-enterological problems. As surgeons and physicians we do not have to live with patients from the roentgenologic point of view but have to treat them daily and keep them free of distress. The shortest interval these patients were on a diet was four months. Some were on a diet for fifteen months. I should be interested to know how many patients Dr. Cole has found with duodenal diverticula whom he has followed and been responsible for treating and keeping free of distress. The multiple diverticula such as he has shown I purposely did not discuss, nor do I think any surgeon of repute today would attempt to deal with such a case. Possibly one, or two diverticula at the outside limit, should be dealt with surgically. In one patient at autopsy nine different diverticula were found in the second and third parts of the duodenum. I also made the statement that I believe thirty-eight of the total should have been dealt with surgically and these patients I hear of or see frequently. They still have their distress but I think that most of them will eventually be operated on. May I point out that of that sixteen, five had previous gallbladder operations, three gastro-enterostomies, and all but four had the appendix removed but still have the distress in the one point. I make no apology whatever for these twenty-two cases in which I have operated. I am only sorry I could not induce the other sixteen patients to have the operation. I am keeping in close contact with them and hope ultimately to be able to persuade them. I should like to point out that the roentgenologist, whom I always have present at the operation for such conditions, is present to designate the site of the diverticulum only, but not as a surgical assistant. He is there to advise about the condition, which I believe is good practice.

POUCHES OF THE PHARYNX AND ESOPHAGUS *

A. S. MACMILLAN, M.D.
BOSTON

My object in this paper is to review the literature on diverticula of the pharynx and esophagus, to mention their probable mode of development, to call attention to the frequency of their occurrence, to discuss their diagnosis and differential diagnosis, and to add an additional twenty-three cases as studied in the Esophageal Clinic at the Massachusetts Eye and Ear Infirmary.

A diverticulum may be defined as a blind pouch that has developed from a viscus or normal canal and may consist of one or more layers of the part involved.

BRANCHIAL CLEFT ANOMALIES

Branchial cleft anomalies must be mentioned in this paper to complete all the pouch formations in the pharynx.

The only congenital diverticula in this region are those of branchial cleft origin. Only rarely do they cause obstruction and contain food. In one patient examined there were two lateral pharyngeal pouches and one posterior, the two lateral pouches probably being the remains of the third or fourth branchial clefts, which open at about the level of the pyriform sinuses. The opening of the second branchial cleft is usually just behind the tonsil and not uncommonly has an external fistula opening in front of the sternocleidomastoid muscle just above the clavicle. The most commonly recognized diverticula of this part are those occurring in the pharynx as the result of a protusion of the lower pharyngeal mucosa through the fibers of the inferior constrictor.

PHARYNGEAL DIVERTICULA

The consideration of pharyngeal diverticula has been the subject of scores of papers in which hundreds of cases have been reported and on which the authors fairly well agree.

From an historical standpoint, the first case reported was by Ludlow,[1] a surgeon of Bristol, England, in 1764, 167 years ago. He referred to it as "a case of obstructed deglutition from a preternatural dilatation of, and bag, formed in the pharynx."

The next case was reported twenty-two years later by Granella.[2]

In 1878, 114 years later, Zenker and von Ziemssen[3] reported five cases and were able to collect twenty-three from the literature—all of these found at autopsy. Zenker applied the term "pulsion diverticulum" to this type, and it has since been referred to as a "Zenker diverticulum."

Etiology.—Several writers give the lodgment of a foreign body as the one most important cause of the formation of these pouches. In our cases it is interesting to note that none of the patients gave a history of having swallowed a foreign body.

Zenker was the first to classify these lesions of the pharynx and esophagus. He divided them according to their method of formation into pulsion diverticula, due to pressure from within, and traction diverticula, due to a pull from without. In the pharynx one has to deal with the one produced by increased intrapharyngeal pressure. In the esophagus appear both the pressure and the traction varieties. Zenker's suggestions as to the etiology of these lesions stands unchallenged today.

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* Read before the Section on Gastro-Enterology and Proctology at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 12, 1931.

[1] Ludlow: Medical Observations and Inquiries, London 3:85, 1767.

[2] Granella, Borsieri: Institute Med. Pract. IV De Dysphagia.

[3] Zenker, F. A., and von Ziemssen, Hugo: Cyclopedia of the Practice of Medicine, New York, William Wood & Co. 8:1-214, 1878.

There is an area on the lower posterior pharyngeal wall where the fibers of the inferior constrictor muscle run in parallel lines in a thin layer from side to side. Above this point they are oblique and heavier and are interlaced. Below they are thickened and act as a constrictor of the upper end of the esophagus. This place seems not only anatomically disposed to the formation of diverticula but also the location which is most exposed to the causes likely to produce them. The canal at this point is at its narrowest; anteriorly is the unyielding cricoid cartilage. Here great pressure is brought to bear by the bolus of food forced downward, and, because of the anatomic weakness, the mucous membrane may be pushed through the fibers of the inferior constrictor. Jackson[4] believes that there is an incoordination in the neuromuscular mechanism which results in a failure of the lower part of the constrictor to open when the bolus presents itself at this point.

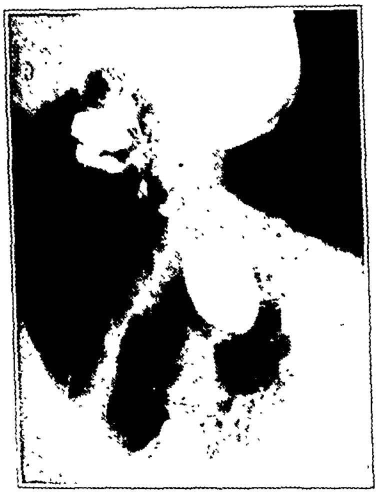

Fig. 1.—A large posterior pharyngeal pouch that has become intrathoracic, and two lateral pharyngeal pouches that are probably of branchial cleft origin.

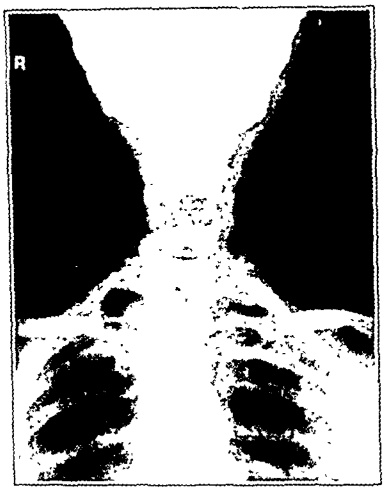

Fig. 2.—Asymmetry of the pyriform sinuses. The one on the right does not fill; possibly an etiologic factor in the production of a pulsion pouch.

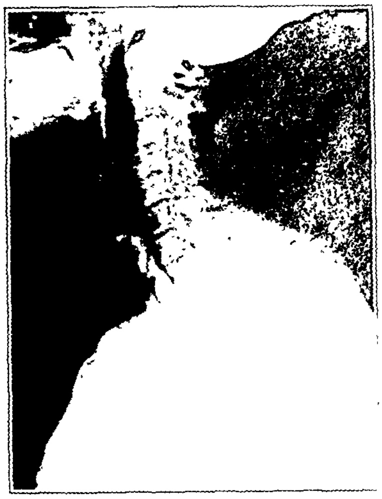

Fig. 3.—The symptoms produced by a pharyngeal pouch depend on its size, the small ones producing the sensations of slight dysphagia, a large one complete obstruction

Mosher[5] believes that there is an embryologic basis for the development of posterior pharyngeal pouches, pointing out the presence of a pouch in the early fetus, and calls to mind the fact that the pig has two pouches in this area. He also states that asymmetry of the thyroid cartilage, the pyriform sinuses and the mouth of the esophagus is a factor in the production of pouches.

Frequency.—Eighteen of our cases, or less than 2 per cent of 1,000 seeking relief from dysphagia, showed the presence of a Zenker pulsion diverticulum. The lesion is relatively uncommon, and less frequent than carcinoma, webs, fibrosis of the upper end of the esophagus, fibrosis of the lower end or "cardiospasm," cervical exostoses or paralysis of the muscles of deglutition.

Age.—The age of our patients varied from 40 to 83 years. The average age was 63 years, showing it to be a disease of later life. Lahey's[6] report of twenty-one cases with operation gives the average age of the patients as 67 years. This age incidence would seem sufficient to rule out any suggestion of congenital etiology.

Sex.—In our eighteen cases, fourteen were males and four females, a ratio which coincides with other reported series.

Symptoms.—The symptoms of a Zenker pulsion diverticulum depend on the size of the pouch. The patients under our observation gave a history of the duration of symptoms from six months to eight years, the average being three years, before they sought relief. There is no clinical picture which is absolutely characteristic of Zenker's pulsion diverticulum. The regurgitation of unchanged food is practically never absent but may occur with other lesions of the upper esophageal region. In the early stage, when the pouch is small there is a sensation as of a lump in the throat, which increases to a feeling of actual pressure as the sac enlarges. The presence of an excessive amount of saliva in the mouth and pharynx in the early stages has been mentioned by Jewett and Lichty[7] but has not been especially marked in our series of pouch cases, any more than was noticed with other lesions of the pharynx.

As the pouch enlarges, its opening becomes continuous with the lower pharynx. At the same time the opening of the esophagus becomes a mere slit on the anterior wall of the pouch, resulting in extreme dysphagia with the regurgitation of practically all food swallowed and an increasing sensation of pressure and suffocation. There may be gurgling noises in the throat, due to the mingling of swallowed air and food collected in the sac. A palpable swelling in the throat, more often on the left side, may sometimes be found after the sac has become quite large. A large diverticulum often presses on the laryngeal and pneumogastric nerve and causes hoarseness. A sense of suffocation and various cardiac symptoms are apt to occur as the sac enlarges into the thorax and presses on the vagus nerve.

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[4] Jackson, Chevalier: Bronchoscopy and Esophagoscopy, Philadelphia, W. B. Saunders Company, 1927, p. 355.

[5] Mosher, H. P.: Asymmetry of the Mouth of the Esophagus and Retropharyngeal Diverticulum, Laryngoscope **34:** 854 (Nov.) 1924

[6] Lahey, F. H.: Surg., Gynec. & Obst. **51:** 227-236 (Aug.) 1930.

[7] Jewett, C. H., and Lichty, J. A.: Diverticula of the Esophagus, Tr. Am. Gastro-Intestinal A. **28:** 251-257, 1926.

Differential Diagnosis.—The differential diagnosis is important because of the other lesions in the esophagus occurring at this age, giving the identical symptoms. The average age for carcinoma in this region was 65 years. The symptoms are often very similar to those of diverticulum except, perhaps, that there is more emphasis on pain in the carcinomatous lesions than in the other conditions.

There are several nonmalignant lesions occurring in this region which may present very similar symptoms. Fibrosis of the upper end of the esophagus may cause varying degrees of stenosis. This degeneration is the result of transference of infection to the esophageal wall from pathologic changes in the cervical glands or adjacent structures in the neck. Mosher[8] has proved fibrosis of the lower end of the esophagus to be due to spreading of infection from extra-esophageal pathologic changes.

Webs of the mucous membrane, due to areas of ulceration, superficial infection or trauma, may produce a conflicting combination of symptoms suggestive of diverticulum. Not infrequently these webs are associated with spurs[9] arising from the inferior and superior border of the anterior aspect of the cervical vertebrae. These spurs push forward the pharyngeal or esophageal wall and produce marked dysphagia.

"Cardiospasm" may produce the same symptoms, even though the site of the pathologic condition is so much lower in the tract.

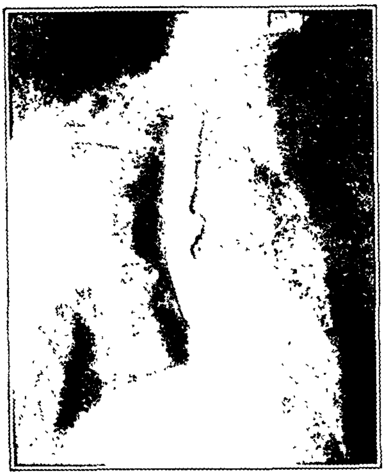
Fig 4.—The majority of esophageal pouches are of traction variety and are usually located on the anterior surface of the middle third and are caused by contraction of a healing peritracheal gland.

Partial paralysis of the lower pharyngeal muscles due to cerebral lesions or anterior poliomyelitis may produce the same symptoms that occur with a pouch. However, the sudden onset is of considerable value in differentiating the two lesions. Any one of the symptoms found with the pouch may be the first one complained of with paralysis. The same symptoms again may be produced by pressure from extrinsic causes, such as tumors arising from structures in the neck. These may present a confusing picture and a different clinical diagnosis.

Roentgen Diagnosis.—The one reliable means of correctly diagnosing diverticula is roentgen examination with barium paste. This at once establishes the presence and size of the sac and the degree of obstruction. The sharply circumscribed lower border and spilling over of barium from the upper level of the sac are absolutely characteristic and need not be confused with any of the other causes of dysphagia.

Hurst[10] reports an anterior pharyngeal pouch in a woman, aged 57, which showed on direct examination as a small slit immediately behind the arytenoid cartilage and in front of the esophagus, three-fourths inch in depth. Here the larynx prevents the pouch from enlarging anteriorly, causing it to obstruct the mouth of the esophagus when it fills. Occasionally, the pyriform sinuses are very deep and repeatedly catch and hold particles of food. This condition is quite frequently seen in roentgen examinations of the esophagus.

Moore[11] calls attention to artificially produced pouches in the depths of the pyriform sinuses, used by criminals for concealing coins.

Treatment.—There is no treatment of any value except surgical removal. Several operative procedures for the relief of Zenker's pulsion diverticulum have been described at different times.

The first recorded surgical operation was by Nicholadoni[12] in 1877. His procedure consisted of opening the sac and establishing a fistula. In 1884, Niehans[13] performed the first one-stage operation for complete removal of the sac. This patient died from hemorrhage on the twenty-fourth day. Wheeler[14] in 1886 performed the first successful operation for the removal of a pharyngeal diverticulum. Dugge[15] in 1893 found only twelve reported cases in the literature of successful removal. Since that time an increasing number of operative cases have been reported.

Gerard[16] in 1896 reported two cases in which operation had been successfully performed by invaginating the sac and suturing the esophageal walls. The sac was then allowed to atrophy or slough off. This same method was used by Waggett and Davis[17] in 1912, but ten months after the operation the sac recurred. This method was abandoned.

Bevan,[18] in 1917, reported a cure by a modification of Gerard's method, but the limitations of this operation have discouraged its use.

In 1910, Stetten[19] collected from the literature a total of forty-eight cases in which operation was performed by the direct excision method, with 18.7 per cent mortality, death in a majority of cases being due to mediastinitis.

In 1907, Goldmann[20] did the first two-stage operation in an attempt to eliminate the dangers of mediastinal infection. The first stage consisted of freeing the pouch from its bed, through an incision along the anterior border of the sternocleidomastoid muscle. The fundus of the pouch was attached to the upper border of the incision—the neck lightly constricted by a suture. After the mediastinal lymphatics were sealed off, about the tenth day, the second stage was done. The sac was excised at its neck and the opening suitably closed. Later, in 1909, he modified this method by tightening the suture about the neck in the first stage, causing the pouch to slough off. This invariably resulted in a fistula which remained open for weeks.

Hill,[21] in 1917, described his operation of "diverticulopexy," which was essentially the first stage of the Goldmann operation. The pouch was left with its fundus at a higher level than its neck and a suture lightly tied about its neck to prevent the entrance of food. He states that, in small and very large pouches, it would be well to include the second stage of the Goldmann operation.

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[8] Mosher, H. P.: J. Laryng. & Otol. **45**: 161 (March) 1930.

[9] Mosher, H. P.: Study of the Movements of the Tongue, Laryngoscope **37**: 235 (April) 1927.

[10] Hurst, A. F., and Briggs, P. J.: Guy's Hosp. Rep. **75**: 367 (July) 1925.

[11] Moore, Irwin: Brit. M. J. **2**: 1169 (Dec. 18) 1926.

[12] Nicholadoni, Carl: Wien. med. Wchnschr. **27**: 605, 1877.

[13] Niehans, quoted by Girard: Cong. franç. de chir. **10**: 392, 1896.

[14] Wheeler, W. I.: Pharyngocele and Dilatation of the Pharynx, Dublin J. M. Sc., series 3, **82**: 349 (number 179) 1886.

[15] Dugge, Carl: Ein Fall von Esophagus Divertickel, München. med. Wchnschr., 1893, number 40, p. 529.

[16] Gerard: Association française des churuigiens **10**: 392, 1896.

[17] Waggett, E. B., and Davis, E. D.: A Case of Pulsion Diverticulum, Lancet **1**: 786, 1912.

[18] Bevan, A. D.: S. Clin. North America **1**: 449-457 (June) 1917.

[19] Stetten, DeWitt: Ann. Surg. **51**: 300, 1910.

[20] Goldmann, E. E.: Die zweideutige Operation von Pulsionsdivertikeln der Speiseröhre, Beitr. z. klin. Chir. **61**: 741, 1909.

[21] Hill, William: Pharyngeal Pouch Treatment by Diverticulopexy, Proc Roy. Soc. Med. (Sec. Laryngol.) **11**: 60, 1918.

Mosher[22] reported several cases in which he slit the common wall between the diverticulum and the esophagus, operating through the esophagoscope. He has since given up this method in favor of the two-stage operation.

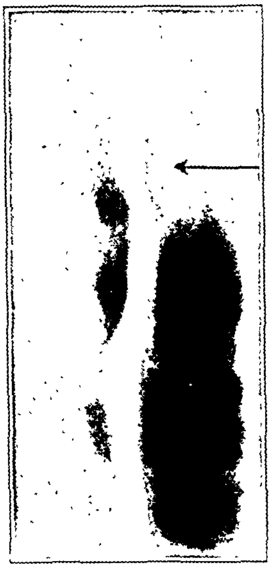

Fig. 5.—This calcified gland was not adherent to a fixed structure and in healing did not produce a pouch.

Imperatori[23] reported three cases in which he inverted the sac endoscopically and encircled it with a ligature. At the end of five or seven days the sac was removed by gentle traction. No infection followed the procedure. The size of the sac, as in the Gerard operation, limits the use of this method. Imperatori has since given up this method as unsafe.

Today, the two-stage operation of Goldmann is accepted as the operation of choice. It has undergone various modifications and refinements, such as Murphy's[24] operation, which omits the ligation at the neck.

Judd,[25] in 1918, sutured the neck of the sac to the skin, waited two weeks and excised the diverticulum. Following this he invaginated the stump into the esophagus. No anesthesia was used for the second stage.

Jackson[4] makes use of the esophagoscope to aid the surgeon in locating the sac. Lahey,[6] in 1930, reported twenty-one cases in which operation was performed by the two-stage method, with no mortality.

The successful removal of these pouches requires very nice judgment, familiarity with the structures encountered and painstaking perfection of the technic employed.

ESOPHAGEAL POUCHES

Esophageal pouches are entirely different from and should not be confused with those of the pharynx. According to autopsy records, esophageal pouches are more common than those of pharyngeal origin.

Zenker,[2] in 1877, was able to collect sixty cases of esophageal origin and only twenty-three of the pharyngeal type. Carman[26] found fourteen clinical cases reported between 1892 and 1919.

Pouches of the upper and middle third of the esophagus are not commonly diagnosed clinically, because they rarely produce symptoms of dysphagia. On the contrary, pouches in the lower third of the esophagus usually do produce symptoms.

In our series of esophageal diverticula, we found one in the upper third, four in the middle third and none in the lower third of the esophagus. The occurrence was 0.5 per cent of the causes of dysphagia.

These esophageal diverticula differ from the pharyngeal type in that they are evenly divided between the sexes and may occur at any age.

Rokitansky,[27] in 1840, is given the credit for first recognizing and describing the mode of formation of one type of esophageal diverticulum, to which he gave the name "traction diverticulum," in contradistinction to the pulsion diverticulum of the pharynx.

Traction diverticula owe their origin to the attachment to the esophagus of infected mediastinal glands or adhesions from infection of any of the surrounding esophageal structures, which contract on healing and exert a pull on that part of the esophagus to which they are attached.

Diseases of the tracheobronchial glands, especially those at the bifurcation of the trachea, make the anterior middle third of the esophagus the most common site for formation of these diverticula. They are usually cone shaped, with their base at their esophageal origin and the apex often at a higher level. Food does not accumulate with the diverticulum so formed; hence the infrequency of symptoms. Their walls may be composed of all the layers of the esophagus, or, if the muscle layer has been ulcerated through, it may consist only of the mucous membrane. A traction diverticulum may rupture into the bronchus or lung, as reported by Hawes.[28] Zenker considers this form very dangerous and apt to cause death by perforation into the trachea, bronchi, pleurae or great vessels.

Le Count[29] reports three cases of pouches found at autopsy occurring on the anterior esophageal wall between the aorta and the left bronchus, where the esophagus is not in contact with relatively firm structures like the aorta, bronchi or vertebrae. In these cases lymph glands were not found attached to the esophagus; the pouches were probably due to pressure from within.

In the same location another type of pouch is mentioned by Hill[30] and was first described by Lugard, who says that it is probably formed by the pouching of the left lateral wall of the esophagus over a connective tissue ligament running from the left bronchus to the dorsal vertebra. It is enlarged by the entrance and consequent accumulation of food into that part of the esophagus prolapsed over the ligament.

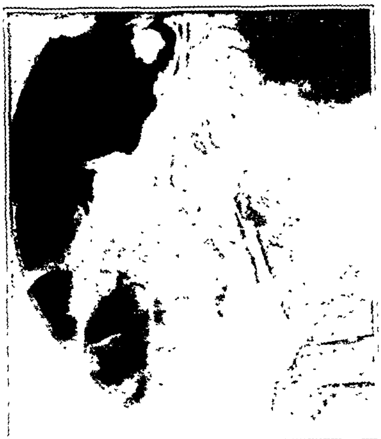

Fig. 6.—Multiple diverticula are uncommon and are usually the result of perforation of the esophagus by caustics.

Another group of pouches are those that occur in the lower third of the esophagus, the so-called epiphrenic or traction pulsion pouches, a name suggested in 1882 by Oekonomides.[31]

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[22] Mosher, H. P.: Webs and Pouches of the Esophagus, Surg., Gynec. & Obst. **25**: 175 (Aug.) 1917.

[23] Imperatori, C. J.: Endoscopic Treatment of Pulsion Diverticulum of the Esophagus, Tr. Am. Bronchoscopic Soc., 1927, p. 70.

[24] Murphy, J. B.: S. Clin. Chicago **5**: 391, 1916.

[25] Judd, E. S.: Collected Papers of the Mayo Clinic, 1918, p. 15.

[26] Carman, R. D.: Roentgen Diagnosis of Diseases of the Alimentary Canal, Philadelphia, W. B. Saunders Company, 1920, p. 65.

[27] Rokitansky: Oesterr. med. Jahrb. **21**: 230, 1840.

[28] Hawes, J. B., Jr.: Broncho-Esophageal Fistula and Traction Diverticulum, Am. J. M. Sc. **161**: 791 (June) 1921.

[29] Le Count, E. R.: Diverticulum in the Cavum Broncho Aorticum, Chicago Pathological Society, 1915-1916, pp. 35-37.

[30] Hill, William: Pharyngeal and Esophageal Diverticulum, Brit M. J. **2**: 1163 (Dec. 18) 1926.

[31] Oekonomides, G.: Ueber chronische Bronchialdrusen-affectionen und ihre Folgen, Basle, F. Rhiem, 1882, p. 71.

In a number of cases reported at autopsy, no evidence of the original traction agent could be found. This leads some observers to consider this type a pulsion type due to some defect in the esophageal musculature. They are sometimes found in cases of "cardiospasm." Vinson [32] considers congenital weakness of the esophageal wall a most important factor. Food lodging in these lower esophageal pouches may dilate them to a considerable size.

Barsony [33] reported two cases of duodenal ulcer in which, during fluoroscopic examination, in a certain phase of the esophageal function, diverticula appeared during the contraction. These, however, could not be observed in another phase. He called them functional esophageal diverticula due to a reflex relaxation from the duodenal ulcers.

Symptoms.—Esophageal pouches rarely produce symptoms and are found incidentally during life while searching for other pathologic changes. Carman [26] found fourteen clinical cases between 1892 and 1919, and added one from the Mayo Clinic. Smith,[34] in 1928, collected twenty-six cases more and added nine of his own, three of which were multiple. Only three of his own cases produced symptoms. The other six were diagnosed as a result of a careful routine esophageal examination in all gastro-intestinal examinations.

Portis [35] reported a diverticulum of the lower third in which symptoms of cardiac embarrassment were very marked and relieved only when the pouch was emptied by a stomach tube. Three of our patients complained of substernal distress and pain, sensation of obstruction in swallowing, but no emaciation or regurgitation of food, so frequently associated with the pharyngeal pouches.

Diagnosis.—Roentgen examination is the only means of differentiating between these and other esophageal lesions; the projection of barium beyond the normal lumen of the esophagus establishes the diagnosis. Great care must be taken to examine the patient in both planes.

Reitzenstein,[36] in 1898, was the first to discover this lesion by the use of bismuth emulsion and the roentgen ray. This was only one of eight clinical means he had for establishing a diagnosis.

Irrigation of the diverticulum affords relief when there is embarrassment due to filling of the large pouch. Feeding through a stomach tube may be necessary. Gastrostomy is sometimes resorted to.

Surgery of the esophagus is extremely difficult. According to Saint,[37] the chief reason for the late inception of surgery of the esophagus, its relatively slow progress and lack of attendant success can be summarized as follows:

1. The inaccessibility of the viscus. This applies particularly to the thoracic portion when its surgical approach is intimately bound up with previously developed operative procedures on the pleural cavity.
2. The absence of a serous coat in its cervical and thoracic parts.
3. A poor blood supply, interference with which often results in necrosis, tearing of sutures and extravasation of infective mucous secretion.
4. The danger of postoperative infection, cervical cellulitis, mediastinitis, pleurisy and empyema.
5. The probable danger of great shock resulting from interference with the vagi.
6. The presence of the diaphragm.

Relatively Small Percentage of Pouches as Compared with Other Diseases of the Esophagus and Pharynx

Condition	Per Cent
Carcinoma	45
Fibrosis of muscle (upper end)	16
Webs	13
"Cardiospasm"	10
Burns	6
Extrinsic causes	4
Paralysis	4
Pharyngeal pouch	2
Esophageal pouch	1

CONCLUSIONS

1. A careful examination of 1,000 cases of dysphagia showed pharyngeal pouches to be the cause of about 2 per cent and esophageal pouches less than 1 per cent.
2. Symptoms, which are not always characteristic, vary with the size.
3. A roentgen examination is the only means of differentiating between pharyngeal pouches and other lesions of the upper end of the esophagus.
4. Esophageal pouches are very commonly found at autopsy.
5. Surgical removal of pharyngeal pouches by the two-stage operation has proved to be the safest and most satisfactory procedure.
6. Surgical treatment of esophageal pouches presents the same difficulties encountered in all esophageal surgery.

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ABSTRACT OF DISCUSSION

Louis H. Clerf, Philadelphia: Physicians are prone to consider the common form of pulsion diverticulum as originating at the upper end of the esophagus, knowing full well that the esophagus is not involved and that the opening of the pouch or diverticulum is promixal to the horizontal fibers or the cricopharyngeal portion of the inferior pharyngeal constrictor. There are no characteristic symptoms which can be considered as being absolutely diagnostic. Boyce's sign and a visualization of this sign described by me in Osler and McCrae's Modern Medicine have been demonstrated in cases of carcinoma of the cervical esophagus. In my experience the roentgen studies have not proved infallible. Three cases can be recalled in which a diagnosis of diverticulum was made by competent roentgenologists whereas the esophagoscopic diagnosis was cancer; in a fourth case the roentgen diagnosis of cancer was changed after esophagoscopy to diverticulum. Esophagoscopy certainly should be considered as a diagnostic procedure, particularly if there is a question in diagnosis. I agree with Dr. MacMillan that the only treatment worthy of consideration is surgical removal. At the Jefferson Medical College Hospital we have been employing a one stage closed operation for the past five or six years with excellent results in a large series of cases. Traction diverticula by reason of their large openings and the absence of a dependent pouch rarely produce symptoms and are commonly discovered during a routine functional esophageal study. I have observed three cases that produced moderate symptoms. One of these was located slightly above the hiatal level. The slight disturbance in swallowing referable to the epigastrium promptly cleared up following esophagoscopy. In the remaining two cases, posture seemed to aid.

Dr. Frank H. Lahey, Boston: In speaking of this condition, one should, I think, always qualify his experience with numbers and mortality. When one speaks of how to treat such a condition as this, one ought to say how many operations he has done by his method, how many patients have died and how many are well. That is basic. First of all, I have operated on thirty-one esophageal pulsion diverticula and none of the patients have died. I state this because I should like to do the one stage operation, but if one patient in a hundred died under the one stage plan of procedure, I should still feel justified in doing the two stage operation. It takes a little longer but it is an operation safe in principle and, therefore, I shall adhere to it up to the time that a considerable number of one stage operations have been done without mortality. There are three stages in pulsion esophageal diverticula, that with the simple projection, that with a definite sac and that with a long bulging sac in the mediastinum. In the first stage, that of bulging, there is merely a feeling of a foreign body sticking in the throat. In the second stage, that is the formation of a small sac, there is only regurgitation of food and mucus. In the third stage there is regurgitation of food and mucus and obstruction. I have learned from experience with these two stage operations that if one wishes to prevent complications during the first and second stages there must be complete dissection of the neck of the sac. The apex of the sac must be implanted in the wound higher than the neck of the sac, and in this way food does not pass into the sac, and the sac does not become dilated between the first and second stages. Furthermore, with high implantation following removal of the sac, at the second stage, there is little or no drainage and the wound closes usually at the end of from ten to twelve days. One should recall that, following the removal of the sac of an esophageal diverticulum, the factors which originally produced the condition are still present and it is necessary for some time afterward to do dilation of the esophagus with bougies. Because of the irregularity of the esophagus as the result of the operative scar, it is wise to ask these patients to swallow a string as a guide to the bougie that is to be passed.

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[32] Vinson, P. P.: Cardiospasm Associated with Esophageal Diverticulum, New York M. J. **117:** 540 (May 2) 1923

[33] Barsony, Theodor: Functional Esophageal Diverticula, Wien. klin. Wchnschr. **39:** 1363-1364 (Nov. 18) 1926.

[34] Smith, L. A.: Diverticula of the Thoracic Esophagus, Am. J. Roentgenol. **19:** 27 (Jan.) 1928.

[35] Portis, M. M.: Esophageal Diverticulum, M. Clin. North America **5:** 53 (July) 1921.

[36] Reitzenstein, Albert: Zur Kentniss und Diagnose der tiefen Oesophagus-divertikel, Munchen. med. Wchnschr. **45:** 354-359, 1899.

[37] Saint, J. H.: Surgery of Esophagus, Arch. Surg **19:** 52-128 (July) 1929.

BENIGN TUMORS OF THE STOMACH

WITH REPORT OF CASES *

BRUCE C. LOCKWOOD, M.D.
DETROIT

Because of their relatively rare incidence, varied morphology, pathology, symptomatology, and roentgen evidence, benign gastric tumors give rise to great clinical interest. That they are more frequent than is generally considered is evidenced by a comparison of the number of benign with the number of malignant gastric tumors examined in the pathologic laboratory which were either removed at operation or discovered at autopsy.

At Harper Hospital during the past seven years there have been 12 benign gastric tumors examined in the pathologic laboratory, during which period there have been 266 cases of malignant gastric tumors in the hospital, an incidence of about 4.5 per cent. Hillstrom [1] found that in the department of pathology of the University of Minnesota, about 5 per cent of all the tumors discovered at autopsy or removed at operation were benign. There have been nearly a thousand cases reported.

Pathologically, the benign tumors which have been reported include fibromas, fibromyomas, myomas, adenomas, angiomas, lipomas, myxomas and cysts.

Morphologically, these benign tumors may vary in size from that of a pea to that of a grapefruit, but the majority have been less than 2 or 3 cm. in diameter. They may be single or multiple; the single growths predominate in case reports, but the fibromas and adenomas are more often multiple. Their site of preference has been the middle third of the stomach, but they are reported as occurring anywhere in the tract from the region of the lower esophagus to the duodenum. They may be entirely intramural, project into the lumen of the stomach in sessile or pedunculated form, or, less frequently, project outside the stomach on a pedicle.

Polypoid growths inside the stomach, frequently mentioned as mucous polyps or gastric polyps, are more often adenomas, although they may occur with other histologic patterns or be mixed tumors of connective tissue and glandular origin. When these small growths occur in large numbers, the condition is known as gastric or multiple polyposis. Numerous cases have been reported, although the condition is extremely rare. In Balfour's [2] experience it was found only once in 69,000 abdominal operations. When these single polypoid growths are large enough and occur near the pylorus, they are described as ball valve tumors.

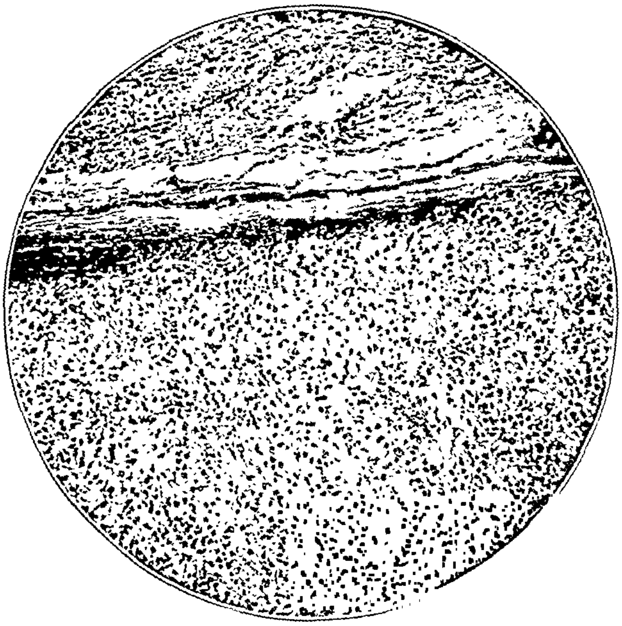

Fig. 1 (case 1).—Section of nonmalignant neuroblastoma removed from posterior wall of the stomach

Eusterman and Senty [3] found twenty-seven benign gastric tumors occurring at the Mayo Clinic between the years 1907 and 1921: ten myomas, five fibromas, four angiomas, two dermoid cysts, one gastric polyposis, two adenomas and three polyps.

Eliason and Wright,[4] in 1925, reported fifty cases found at operation or autopsy: sixteen papillomas, sixteen polyps, six fibromas, five adenomas, four myomas, one cyst and one lipoma. Moore,[5] in 1924, reported twenty-three cases diagnosed roentgenologically and proved at operation. In 1927 he [6] reported eighteen additional cases observed during the intervening three years. Holmes,[7] in 1927, had seen seven proved cases occurring in about 30,000 examinations

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* From the Department of Internal Medicine, Harper Hospital.

* Read before the Section on Gastro-Enterology and Proctology at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 12, 1931.

[1] Hillstrom, quoted by Rigler (footnote 9).

[2] Balfour, D. C.: Surg., Gynec. & Obst. **28:** 465 (May) 1919

[3] Eusterman, G. B., and Senty, E. G.: Surg., Gynec. & Obst. **34:** (Jan.) 1922.

[4] Eliason, E. L., and Wright, V. W. M.: Surg., Gynec. & Obst **41:** 461 (Oct.) 1925.

[5] Moore, A. B.: Am. J. Roentgenol. **11:** 61 (Jan.) 1924.

[6] Moore, A. B.: Benign Tumors of the Stomach from the Roentgenologic Point of View, J. A. M. A. **89:** 368 (July 30) 1927.

[7] Holmes, G. W., in discussion of Moore (footnote 6).

during the previous fifteen years. Mason and Dwyer[8] found only three cases of benign tumors in 4,000 roentgenologic and clinical examinations. Rigler[9] found eleven cases of benign growth to seventy-four cases of carcinoma in an unstated number of gastro-intestinal examinations during a two year period. A more complete discussion of the literature has been given by the authors mentioned.

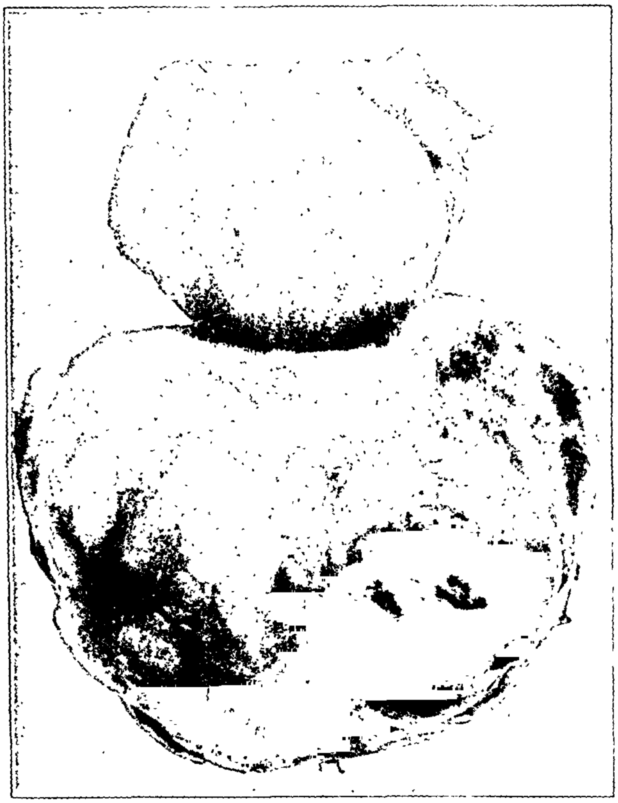

Fig. 2 (case 2).—Fibroid masses removed from lesser omentum

In this series of twelve cases there were five fibromas, three adenomas, two pancreatic rests, one polyp and one neuroblastoma. The literature does not reveal a gastric neuroblastoma previously reported.

SYMPTOMS AND LABORATORY OBSERVATIONS

The symptoms are determined by the size, nature and position of the growth. The smaller growths may exist symptomless, provided they are not ulcerated and are not near the sphincter; such tumors have been discovered at autopsy.

Larger tumors, intramural or pedunculated, have usually produced enough disturbance of gastric function from pressure or traction to cause variable, intermittent, long standing symptoms of indigestion, such as distress or pain after meals, heartburn and nausea, not characteristic of any one specific condition. Tumors, sessile or pedunculated, situated near the pylorus, may produce an intermittent ball valve pyloric obstruction, with attacks of severe pain, nausea, vomiting and often bleeding, probably due to torsion of the pedicle and strangulation. Complete pyloric obstruction may take place with gastric dilatation, food retention and visible peristalsis. These obstructions have usually been temporary, as the tumor often falls back into the stomach with relief of symptoms, until the next recurrence.

Intermittent bleeding has also often been seen from polyps situated away from the pylorus, probably because of their excessive vascularity, especially the angiomas. Superficial ulceration also may take place.

Malignant degeneration not infrequently occurs, especially in the adenomatous types, producing, together with a restricted diet, a gradual loss of weight and advancing anemia.

The laboratory observations are not characteristic. Achlorhydria is frequent, especially in the cases of hypertrophied gastric mucosa and polyposis. There is an increase in mucus, occasionally blood, and in a few cases a polypus has been caught in the eyelet of the tube, recovered, and examined microscopically. In other cases a hyperchlorhydria with variable degrees of delayed evacuation has been found, simulating pyloric ulcer. Secondary anemia is common.

Physical signs relate only to palpating the tumor mass, which depends on the size of the tumor and the thickness of the abdominal wall. This is more likely to be accomplished under fluoroscopic guidance.

ROENTGENOLOGIC EVIDENCE

Roentgenologic examination is by far the most valuable method in diagnosis. Of greatest importance in finding any of the smaller lesions of the stomach is the careful routine and unhurried fluoroscopic examination, with careful approximation of the stomach walls and determination of organ mobility by manual pressure. Observations should be made from different angles in both the upright and the prone positions, with the stomach containing only a few swallows of barium. Overfilling of the stomach may obliterate a view of the defect.

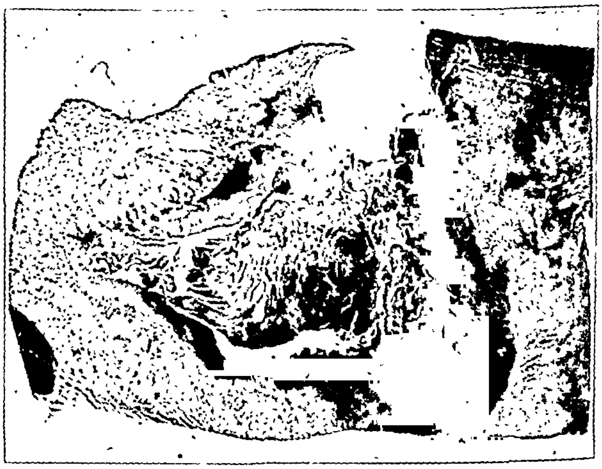

Fig. 3 (case 2).—Section of gastric myoma showing round cell infiltration, necrosis and ulceration.

The characteristic sign of a mural, sessile or internal pedunculated growth is the round or oval sharply contoured filling defect. Since most of these tumors arise from the mucosa or submucosa, they are central rather than marginal and can be shifted within the stomach in varying degrees by palpation. They appear as rounded translucences, much like a foreign body in the lumen of the stomach. As the gastric musculature usually remains unaffected, the peristalsis is uninterrupted and

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8. Mason, J. T., and Dwyer, M. F.: Benign Tumors of the Stomach, J. A. M. A. **90**: 235 (Jan. 21) 1928.
9. Rigler, L. G.: Am. J. Surg. **8**: 144 (Jan.) 1930.

the wall remains pliant. Except in cases of multiple polyposis, the rugae have a normal appearance; they are not in star shaped, convergent folds as in ulcer or scar, and are not obliterated as in cancer. Absence of the spasm and diminution in the size of the stomach, usually seen in ulcer or cancer, are other characteristics of benign growths. A mass may or may not be felt. Multiple growths are strongly indicative of a benign character.

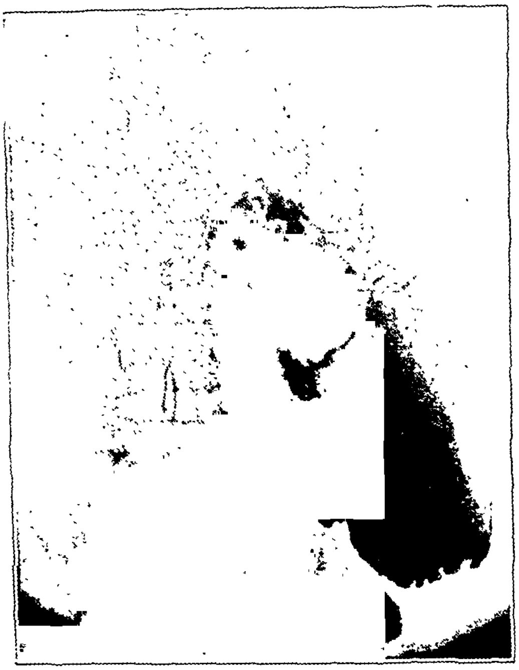
Fig. 4 (case 3).—Marginal ulcer with polyp.

In gastric polyposis the numerous small rounded defects or translucences are described as giving a characteristic picture, resembling a sponge or finger marks.

A small growth in the antrum may give only a vague filling defect and a six hour residue, suggesting a pyloric ulcer or cancer. A polypoid growth prolapsing into the duodenum gives a central translucence which may be fairly diagnostic.

TREATMENT

Treatment, aside from the palliative, is entirely surgical, and should be carried out as soon as possible, on account of the not uncommon occurrence of malignant degeneration, especially of the adenomatous type of tumor. Friedenwald and Finney[10] and others have reported such cases. The end-results from surgical excision are reported as excellent.

In cases of multiple polyposis, gastric resection is indicated, provided the disease is causing enough trouble to warrant such operative risk.

REPORT OF CASES

The following case reports represent examples of the different morphologic types of tumor with their different manifestations:

Case 1.—F. D., a white man, aged 42, who consulted me, July 8, 1929, had an irrelevant past history for a painless jaundice lasting two weeks in 1914. The present complaints began in 1927, since which time he had had periods, lasting from one to two months and occurring two or three times a year, of a burning epigastric pain, coming on from half an hour to three hours after meals and radiating upward under the sternum and at times to the right upper quadrant of the abdomen. The pain was relieved often by soda and by induced vomiting. He had had no nausea and had never vomited spontaneously. On four or five occasions he had had attacks of a more severe and diffuse epigastric pain coming on at about 3 a. m. and lasting from two to three hours, requiring morphine for relief. He had not had any hemorrhages. He had lost about 25 pounds (11 Kg.). The bowels were normal. Physical examination was negative except that there was moderate tenderness in the epigastrium and in the right upper abdominal region. Laboratory examination showed: urine, normal; blood count, normal except for slight secondary anemia; blood Kahn reaction, negative. Gastric analysis showed an achlorhydria. On fluoroscopic examination the chest was found to be normal. Ingestion of the barium meal showed the esophagus normal. The stomach was of the intermediate type with active two cycle peristalsis. With the stomach containing from 1 to 2 ounces of the barium, the rugae were found to be of normal size and direction. On the posterior wall in the middle third of the stomach was a slightly tender filling defect about 3 to 4 cm. in diameter, with a smooth border, easily palpated and movable about 2 or 3 cm. Further filling of the stomach with the opaque mixture obliterated a view of the tumor. The duodenum was normal, but there was considerable tenderness in the gallbladder region; normal motility was present at five hours. The remainder of the tract was normal.

Oral administration of the dye did not show any filling of the gallbladder at the fifteenth, eighteenth, or twenty-first hour. No stones were demonstrated.

A diagnosis of a nonmalignant intramural tumor of the posterior wall of the stomach, with probable gallbladder disease, was made.

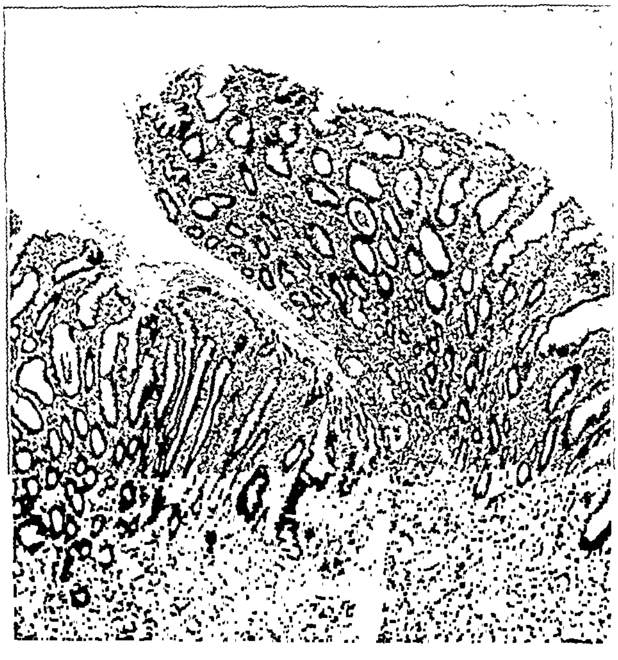
Fig. 5 (case 3).—Section of nonmalignant papillomatous polyp.

Subsequent observation during attacks of pain showed on one occasion much gallbladder tenderness and some spasm of the right upper abdomen. In other attacks this was not apparent. In Harper Hospital, preliminary to operation, the roentgen observations were confirmed by Drs. Evans and Reynolds although in the meantime in another city roentgen studies were reported as entirely negative.

The patient was operated on, October 3, by Dr. Max Ballin. A round tumor of firm consistency, about 3 cm. in diameter, was excised from the posterior wall of the stomach. It arose in the submucosa and was slightly sessile. A cholecystitis was also found, with two stones lodged in the cystic duct. A cholecystectomy was done. The pathologic condition of the tumor was reported by Dr. A. S. Warthin to be that of a nonmalignant neuroblastoma (fig. 1).

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[10] Friedenwald, J., and Finney, J. M. T.: Am. J. M. Sc. **154**: 683 (Nov.) 1917.

Case 2.—Mrs E. B., a white married woman, aged 50, who was referred in March, 1927, gave a past history which was irrelevant except that she had had a fibroid uterus removed in 1923. She had never been pregnant. The chief complaint was that intermittently during the past year she had been able to feel a lump in the upper portion of the abdomen. No pain and no gastric disturbance had been noted, but there had been some soreness in the lump during the spells when it was palpable. There was also some dyspnea and palpitation on exertion. The patient was well nourished. The pulse was 100 and the blood pressure was 190 systolic and 115 diastolic. A moderate cystadenoma of the thyroid was noted and the heart was moderately enlarged, with an occasional premature systole. In the epigastrium was palpated a smooth, hard, round, slightly tender mass about the size of a lemon, freely movable about 4 inches (10 cm.) in each direction, which could almost be made to disappear under the margin of the left ribs.

Laboratory examination showed that the urine was normal; achlorhydria was noted in a single test meal; the stool was normal; there was moderate secondary anemia; the Kahn reaction was negative. The basal metabolism was plus 11.

Roentgen examination showed the chest normal except for some cardiac hypertrophy. The esophagus was normal. The stomach was of the intermediate type, showing two cycle, uninterrupted peristalsis. There was no evidence of ulcer or growths. The palpable mass appeared to be outside the stomach, resting along the lesser curvature, and produced a broad shallow pressure defect. On manual movement of the mass upward, the stomach also seemed to be drawn upward but not to the extent that the mass could be moved. Manual movement of the stomach also seemed to move the mass. The stomach was empty at five hours, and the rest of the tract was normal. A diagnosis of a tumor or cyst of the lesser omentum or lesser peritoneal cavity was made and operation was advised. This, however, was postponed by the patient for two and one-half years, or until the tumor had grown to the size of a grapefruit and there were several attacks of rather severe pain. During this time I lost contact with the patient until the day of operation. She was operated on in October, 1929, by Dr. Angus McLean. A large round fibroid mass about 15 cm. in diameter was found adherent in the lesser omentum and attached to the lesser curvature of the stomach by a short broad pedicle (fig. 2). Attached to the side of the mass also by a short broad pedicle was another tumor of like consistency but about half as large. In the stomach at the site of the attachment of the tumor was a gastric ulcer. The tumor and ulcer were excised, and the patient has remained well.

Pathologic examination of the tumor by Dr. P. F. Morse showed that the specimen consisted of a vascular myoma of the gastric wall, with recent round cell infiltration, and a large area of necrosis, with ulceration (fig. 3).

Case 3.—T. F., a white man, aged 32, single, had had a gastro-enterostomy for duodenal ulcer in 1919, after which he remained well for one year. In 1920 there was a return of symptoms, and examination and operation disclosed a marked enlargement of the jejunum, due to an obstruction and adhesions distal to the stoma. Freeing of the adhesions and obstruction gave relief for another year. In 1922 a diagnosis of marginal ulcer was made and the patient was operated on again in 1923, when the gastro-entero-anastomosis was removed, a very large ulcer excised, the lower half of the stomach resected and a posterior Polya anastomosis performed. He remained well for three months, when there was a return of the symptoms, and roentgen examination by Drs. Evans and Reynolds disclosed a new marginal ulcer, with the probability of a polyp (fig. 4). In 1927 he was operated on again, and the ulcer was excised together with a polyp about 2 cm. long, originating at its edge.

Dr. P. F. Morse reported that the tumor consisted of redundant gastric mucosa with areas of buried glands, and infolding of a nonmalignant papillomatous polyp (fig. 5).

CONCLUSIONS

The relative incidence of benign to malignant growths in the stomach is about 1 to 20, as shown by the records from both operating and autopsy rooms.

The percentage of diagnosed cases of benign tumors would be increased by more frequent and more careful fluoroscopic study. The roentgen observations are reasonably characteristic. In order to demonstrate the smaller lesions, the stomach must contain only small quantities of the contrast mixture, the walls must be approximated by manual pressure, and the patient must be examined in both the upright and the prone position.

The symptoms are not typical; they vary with the site, size and character of the lesion, and may simulate other forms of indigestion.

Because of the tendency of these slowly growing benign tumors to become malignant, their recognition is important and their surgical removal indicated.

10 Witherell Street.

ABSTRACT OF DISCUSSION

Dr. George B. Eusterman, Rochester, Minn.: In Dr. Lockwood's opinion, the frequency of benign tumors of the stomach amounts to about 5 per cent. This is considerably higher than my incidence of 1.3 per cent, in a paper which I published in 1922. Undoubtedly the incidence is greater than in the statistics which I quoted, owing to the rapid accumulation of other convincing case reports in the literature in the last decade. Up to the present I have had some sixty-five surgically verified cases of my own. It is also quite likely that a certain percentage of lesions regarded as inoperable carcinomas of the stomach because of their high situation in the organ are benign. This has been proved by the fact that it was only on the insistence of the patients, demanding exploration in spite of the unfavorable site of the growth, that the true nature of the lesion was determined, it being benign and not malignant. From the standpoint of the pathology of these lesions I have nothing more to say, except that they are of a diverse nature, as emphasized by the author and by other writers, and that the only complication such tumors do not have that ulcers do is perforation, acute or chronic. They may all obstruct or bleed, or undergo carcinomatous transformation, and, in addition, may intussuscept. Some of the most dramatic and painful complications that I have seen were the result of intussusception of such tumors situated in or near the pylorus. The roentgenologic aspects of these lesions have been well summarized by the author and I might say that he has included practically all the criteria that Moore and his associates laid down several years ago and which have been confirmed by all other roentgenologists. From the symptomatic standpoint one must remember that these tumors are frequently symptomless, especially those that are small and do not involve the orifices. Some of these tumors are quite large, without producing symptoms, although evidence of anemia or hemorrhage may be present. Moreover, they do not involve the curvatures as ulcers and cancers do, but have a predisposition to the anterior and posterior walls. Apparently not all these tumors have characteristic roentgen changes. Formerly, the majority of benign tumors were considered to be carcinomatous, but nowadays they are often called benign when at operation they really turn out to be carcinomatous. Finally, I wish to stress the high incidence of anemia and the infrequency of pyloric obstruction and palpable mass. Some of these lesions are associated with an anemia of severe grade, indistinguishable from pernicious anemia, and usually with an absolute achlorhydria. These cases are being followed with interest since removal of the lesions. It is also important to exclude tumors, sometimes benign, of the upper digestive and intestinal tracts in all cases of unexplainable anemia, especially in the presence of gross or occult bleeding from the digestive tube.

Dr. Frank Smithies, Chicago: In your classification of benign tumors do you exclude gummas?

Dr. Eusterman: I exclude gummas. We consider them granulomas and not growths, in the strict sense.

Dr. Maurice Feldman, Baltimore: Diverticula of the duodenum are not an uncommon observation. The condition is reported with greater frequency because of better and more thorough roentgen studies made in the routine gastro-intestinal examination. The diagnosis of duodenal diverticula in most instances is accidental, the roentgen ray offering the only preoperative means of diagnosis. Not infrequently, however, the pouches may be overlooked or overshadowed and may remain unrecognized or at times even misinterpreted. I should like to emphasize the importance of the fluoroscopic method of examination as a method of choice in the detection of diverticula involving the duodenum and the importance of observing the duodenum with meticulous care, with the palpating hand. It is also necessary to take roentgenograms in various positions in order to recognize some diverticula. In my experience with diverticula, I find that manipulation and pressure over the duodenum in the roentgen study is an important procedure which cannot be too strongly stressed in the diagnosis.

DIVERTICULA AND DIVERTICULITIS *

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NEW YORK

Diverticula may occur anywhere in the intestinal tract, and in many instances there is an embryologic excuse for their existence. They occur from the appendix to the anus but more frequently in the sigmoid than in any other part of the alimentary canal.

The bowel is developed from a diverticulum and from it, as diverticula, arise the liver and pancreas and the cecum with its degenerate end, the appendix. In regions where diverticula are a normal developmental necessity, sporadic secondary diverticula may occur. In other instances they may be merely structural imperfections of early fetal life, as in the case of the outgrowths of intestinal epithelium perforating the muscular coat, which occur about the third month and which may, later on, be responsible for diverticula (Lewis and Thyng).

Although this subject has been sporadically mentioned in the literature for some 230 years and the possibility of secondary pathologic trouble has been recognized, it is only within the last decade or two that it has received serious attention. Telling has said that "until a morbid condition is described in all the ordinary student textbooks of medicine and surgery it cannot be said to have obtained complete recognition." The truth of this is evident.

The disease was mentioned by Cruveilhier in 1849 and by Virchow in 1853, both commenting on its frequency. For the next decade or two there was quite a revival of interest in the subject, Rokitansky being responsible for the classification of diverticula into "true" and "false." In 1873, Mr. J. W. Hulke reported a case of diverticulum of the small intestine which had become adherent to the rectum and eventually opened into it. Sidney Jones and Mr. Hawkins in the same year reported cases of "false" diverticula of the sigmoid, ending in a vesicosigmoidal fistula. Pratt's case was an instance in which a loop of the small intestine had become adherent to the wall of the pelvic colon, resulting in intestinal obstruction.

However, in this period all credit must be given to Sir Charles Ball for his most exhaustive and enlightening description of the disease and all its possibilities for trouble. This article can be found in his textbook on "Diseases of the Rectum and Colon" published in 1887.

Strange as it may seem, in view of the active interest in this subject between the decades of 1870, 1880 and 1890, it seems to have escaped the notice of the general medical profession. The period of the renaissance may be dated from 1898, when Graser's paper appeared. This was followed by studies by Fischer, Beer and Moynihan, and an excellent contribution in 1907 by Mayo and Wilson. In 1908, Telling published a comprehensive review of the whole subject. From then on up to the present, many papers have appeared. Those chiefly of interest were by W. J. Mayo, McGrath, Lejars and Menetrier, Lockhart-Mummery, Judd, Masson, Spriggs and Marxer. To Case belongs the credit for having first suggested "diverticulosis" as a title for the noninflammatory mucosal herniations.

Almost all phases of the disease have been exhaustively studied, and some rare secondary and far-reaching complications have been mentioned, which should emphasize the necessity of always being on the qui vive for an early diagnosis, with the hope of avoiding these complications and fatalities.

Diverticula may be divided into complete, which involve all the coats of the intestine, and incomplete, which involve only the mucosa and peritoneum. I think that the classification of diverticula as true and false, suggested by Rokitansky, is much better than division into congenital and acquired, because to my mind the evidence, so far, in favor of the acquired theory is not convincing. All the causes so far assigned do not satisfactorily explain diverticulosis. I believe that diverticula, like hernias, have the same underlying cause; like cancer they occur at all ages but are most manifest after the age of 35; they occur more frequently in males than in females, are much more frequent than is at present appreciated, and are always associated with symptoms; but, as in hernia and a good many other diseases, the symptoms are not so obvious as to suggest their origin. In other words, there are so many other ways to account for the symptoms accompanying diverticulosis that they are usually assigned to some simpler pathologic condition.

All people with diverticulosis have symptoms, but the symptoms are overlooked and are considered as being due to dietary indiscretions and the like. There is always dull aching pain. The average practitioner unfamiliar with diverticulosis would not associate with that disease a dull aching pain accompanied by occasional attacks of diarrhea, alternating with constipation and gaseous distention. When these lesions occur on the right side, in the appendix, cecum or ascending colon, they are much more likely to receive serious attention and be discovered than if they are on the opposite side. This is obvious when one considers that most of the acute abdominal conditions are confined to the right abdominal cavity and that most of the developmental abnormalities are on the right side. Naturally, when a patient complains of pain or discomfort there, he stands a good chance of being roentgenographed and thoroughly overhauled, but not so when the lesion is on the other side. Yet, as a matter of fact, most of the acute cases of diverticulitis occur on the left side, particularly in that most variable portion of the alimentary canal, the sigmoid.

Diverticulitis may occur at any point where a diverticulum has formed, but the most frequent site is the sigmoid. The sigmoid is a loose, movable organ and may be up in the abdomen one moment and in the pelvis

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* Read before the Section on Gastro-Enterology and Proctology at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 12, 1931.

the next. It is subject to twists and volvulus and variation in position. This seems to me the probable reason why inflammation occurs most often in the sigmoid. The sigmoid usually contains hard fecal matter, and its variations of position cause it to be more liable to injury than are any of the other parts of the colon.

The symptoms of diverticulitis vary with the pathologic condition. The pathology is practically the same as in appendicitis. If there is an acute condition, all the symptoms are present that one sees with acute appendicitis; viz., pain, rigidity, rise of temperature and vomiting. Mummery's suggestion to divide these cases, from a clinical standpoint, into those in which there is a tumor formation and those in which there is an acute abscess is excellent, because in the one instance one is dealing with an acute, active, surgical condition, while in the other the condition is a chronic one that does not require immediate active surgical intervention.

The sequence of events and complications of a diverticulitis depend on the pathologic process. There may be a thinning of the mucosa, with the passage of toxins into the bowel, local peritonitis and adhesions. The diverticulum may become strangulated and slough off into the peritoneal cavity. An abscess may form which can wall itself off or perforate, presenting the same symptoms as in the perforation of any abscess into the bowel or peritoneal cavity. There may be a hyperplastic inflammation as in tuberculosis, and this is the most frequent. Adhesions may form to any organ in the abdominal cavity, frequently to the bladder with perforation into the bladder. The symptoms arising from any of these complications depend on the nature and site of the pathologic process.

There is no medical treatment for diverticulosis any more than there is any medical treatment that will abort appendicitis. In my opinion, all people with diverticulosis would be better off with an appendicostomy; diverticulitis would be less likely to develop. When an acute pathologic process is present, the best procedure is to make a stoma cephalad to the site of pathologic change and always at a sufficient distance so as not to interfere with subsequent surgical intervention. When there is a fistulous opening into the bladder, it is better to allow the colostomy or stoma to remain open for a long time, in the hope that, if the current is sidetracked and the source of infection is eradicated, the opening into the bladder will close up. It is never safe to try to close the opening until all the inflammation has subsided. If it does not close of its own accord, an attempt may be made to close it afterward.

I have done five resections of the sigmoid for the hyperplastic type of diverticulitis. Four patients recovered, and the other died of peritonitis. If I had known as much then as I do now, I would not have attempted the resection until after the patient had been colostomized for some time.

The diagnosis of diverticulitis is sometimes a matter of great concern, for there are other conditions which closely simulate it. Because of the mobility of the lower sigmoid, the symptoms may be entirely right-sided and suggest appendicitis, a justifiable and quite natural error. If the diverticulum involved is located in other parts of the colon, a relatively infrequent occurrence, accurate diagnosis may be impossible. Occasionally, acute intestinal obstruction occurs, supervening on a chronic hyperplastic diverticulitis or kinking of the small intestine by adhesions.

In the realm of differential diagnosis I would mention carcinoma of the rectosigmoid, malignant vesicocolic fistula, gynecologic conditions in the pelvis, sigmoiditis, hyperplastic tuberculosis and syphilis.

Carcinoma of the rectosigmoid may be ruled out by careful sigmoidoscopic and roentgenologic investigation, but sometimes the diagnosis cannot be made until the specimen has been sectioned by the pathologist. In this connection it may be stated that a number of cases of carcinoma, secondary to diverticulitis, have been reported. I have had two cases. Malignant vesicocolic fistula may be ruled out by cystoscopic study. The absence of blood in the stools cannot be relied on in making a differential diagnosis, because I have seen a number of cases of diverticulitis not alone with blood in the stools but with severe hemorrhages. Theoretically, it should be easy to distinguish between diverticulosis and carcinoma of the sigmoid, as a diverticulosis has a much longer history, with frequent attacks of acute exacerbations and remissions, whereas in carcinoma there is practically no discomfort until the tumor is well established or until it involves the lumen of the bowel. There is apt to be much more blood and mucus in the stool of a patient suffering from carcinoma, but as a matter of fact many cases of carcinoma of the sigmoid closely resemble diverticulosis in that the entire wall of the bowel is apt to be involved. Theoretically, it should be confined to the mucosa before it is discoverable, but this is not always so.

Again, carcinoma of the sigmoid not infrequently becomes adherent to the side of the pelvis, and then a perisigmoiditis with abscess formation occurs. This will sometimes give the appearance of diverticulosis. On account of ulceration, carcinoma located just before the peritoneal reflection is not infrequently associated with abscess. I have more than once, in dissecting, opened up an abscess; and, as was to be expected, there was a history of fever and pain, together with bladder symptoms, previous to operation. The diagnosis in these cases, therefore, is not by any means as simple as one would suppose.

It has been suggested by some that loss of weight in carcinoma should serve as a distinguishing feature in comparison with diverticulosis, but as a matter of experience I have found very few cases of carcinoma, except in the advanced stages, in which there was loss of weight. In St. Bartholomew's Hospital there was one instance in which a woman with a very advanced carcinoma gained weight for many months, when she was in an inoperable condition. Therefore, loss of weight cannot be depended on to differentiate carcinoma from diverticulosis.

Pelvic conditions involving the general organs are not infrequently due to diverticulitis of the sigmoid, as shown by Poulain. Giffin describes pelvic tumors in four women suffering from diverticula without any coexisting bowel symptoms. Sigmoiditis occurs at an earlier age than diverticulitis, usually recedes spontaneously, and, pathologically, is apt to involve the mucosa. Hyperplastic tuberculosis almost invariably involves the cecum, and some tangible evidence of tuberculous infection is usually available. Syphilis should always be thought of and ruled out.

The usefulness of the x-rays in diagnosis has been occasionally limited by the physical impediments to the entrance of the barium mixture into the diverticular sac, but in the majority of instances roentgen examination is invaluable.

It is doubtful whether medical treatment can prevent diverticulitis. It seems to me that appendicostomy would prevent diverticulitis. The treatment of diverticulitis is obviously surgical.

REPORT OF CASES

CASE 1.—A woman, over 50, referred by Dr. Torrens in 1926, gave a history of occasional severe attacks of pain in the left lower quadrant, over a period of many years. Five days before I saw her she had severe colicky pains with constipation and fever, continuing for two or three days, when she began to vomit. She had been vomiting for two days previous to my seeing her. She was brought into the hospital with a distended and tympanitic abdomen, a rapid pulse and a temperature of about 101. She was immediately prepared and sent to the operating room, with a diagnosis of intestinal obstruction of some form. When the abdomen was opened by a left rectus incision, a long sigmoid, studded with diverticula, came into view. On further exploration it was found that the inflamed diverticulum had become adherent to a loop of small bowel, which was incarcerated in a femoral hernia. An ileostomy was performed, but the patient did not recover.

CASE 2.—T. S. R., a man, aged 59, tall, very thin and delicate looking, complained of long standing definite discomfort in the left iliac fossa. The bowels had always been regular. He had never passed blood or mucus. Two weeks previous to the examination he had had abdominal cramps, low down on the left side. Four days previous to examination he had such severe pain that he had to go to bed. The pain was so severe that he kept an ice bag over the lower left portion of the abdomen, over the sigmoid. The temperature was 100. The sigmoid loop with the inflamed diverticulum had prolapsed into the culdesac and was in close proximity to the bladder. There was danger of rupture of the diverticulum into the bladder, resulting in a fistula. Colostomy was advised but was not accepted.

CASE 3.—A patient who complained of a constant pain in the region of the appendix with tenderness over the cecum, and constipation, was operated on, with a preoperative diagnosis of chronic appendicitis. The presence of diverticula was discovered at operation. The appendix was removed, and the histologic examination showed a catarrhal inflammation. I did not feel justified in resecting the cecum because, even though the diverticula were present, none of them were inflamed. The patient was improved by the operation but continued to have a dull ache in the region of the cecum.

CASE 4.—Mrs. O. S., aged 55, had had an operation on the uterus some years before, and a nervous breakdown in 1913, one year prior to presentation, but was otherwise healthy. She complained of stomach trouble, gas, and pains in the epigastric region. Vomiting occasionally gave relief from pain. The bowels were constipated, requiring cathartics for any bowel movements. One year ago the patient passed a little blood and mucus. She had been losing weight for seven months (20 pounds, or 9 Kg.). For two months previous to examination she had an imperative desire to move the bowels, the first thing in the morning, and passed only a little blood and mucus, which gave relief. There was always a feeling of unfinished stool. She had an uncomfortable feeling in the abdomen and constant backache for two years. Physical examination revealed that the heart, lungs and chest were normal. A double hernia was present, and there was tenderness over the gall-bladder, appendix and sigmoid. A diagnosis of diverticulitis of the sigmoid and colon was made.

CASE 5.—Mrs. W. P. W., complained of pain in the left side of the abdomen and across the abdomen. The bowels were never constipated. Roentgen examination, in 1921, showed the sigmoid deeply haustrated but not unduly long. On each side of the sigmoid shadow there was a series connected with it by a narrow isthmus. The descending colon was not filled; the transverse colon had rather poor tone. There was a filling defect due to gas distal to the hepatic flexure. A diagnosis of diverticulitis of the sigmoid was made. Operation was not performed. The patient was in St. Bartholomew's Hospital for eleven days. Treatment consisted of diet and enemas. The patient recovered and returned home. She had regular bowel movement daily and no recurrence of pain. No discomfort was felt after eating.

CASE 6.—F. M., aged 38, complained of pain in the left iliac region, a slight fever and severe abdominal cramps, but no chills were present. Examination revealed tenderness and a mass over the left iliac region. Operation was performed in 1917 at the Polyclinic Hospital, with a left rectus incision. The sigmoid was found to be adherent in the iliac fossa and covered with omentum. Numerous diverticula were seen over the area of the lower sigmoid. There was an abscess cavity which was opened into on the lateral outside wall of the lower part of the sigmoid, probably a mural abscess. After considerable difficulty, enough of the sigmoid proximal to the diseased area of the bowel was freed, and four drains were inserted.

CASE 7.—D., a man, aged 49, five months previous to examination in 1925 complained of a dull dragging pain in the lower left side of the abdomen, accompanied by fever (102). Daily irrigations of the lower bowel with rest in bed for two weeks gave complete relief. Several weeks ago the patient had attacks of intermittent pain in the lower left side of abdomen again, accompanied by fever, and relieved in a few days by colonic irrigations. Pain was relieved, but tenderness persisted in the lower left quadrant. The bowels were always regular. He noted some mucus and what he thought was pus in the stools. He lost 30 pounds (13.6 Kg.) in three months. A similar attack occurred four years ago, with pain in the left lower part of the abdomen, fever, and some blood in the stools.

Examination of the abdomen revealed a mass in the left lower quadrant, about 4 inches long and 2 inches wide, tender on palpation. Preoperative diagnosis of diverticulitis with possible malignant degeneration was made. Operation was performed, and a hard nodular tumor resembling carcinoma was found, attached just above the brim of the pelvis on the left side, in the proximal limb of the sigmoid. Resection of the sigmoid was done. Pathologic examination revealed a chronic inflammatory process with no evidence of a malignant condition.

Three months later, the patient was readmitted, presenting a small discharging sinus. He was feeling much improved and had gained in weight. A small abscess was found just below the old opening, and the entire infected area was excised. Recovery was complete.

CASE 8.—A. M. H., a man, aged 60, presented himself for examination in 1909. He gave a previous history of ischiorectal abscess in 1888, which was opened. He had a cosmetic operation afterward. Constipation had been present since then.

In 1901 he had slight rigor with pain in the anus. In 1902 he had a severe attack of chills and fever, tenesmus and severe local pain with discharge of pus. This subsided and was soon followed by another similar attack. In the hospital a retention catheter was passed, and the patient suffered a great deal. He continued to suffer with chills and fever; catheterization was employed several times, and about this time he had pain over the pubis and the left iliac region. The abdominal muscles were rigid. His condition improved, but he passed some gas through the penis, which was attributed to infection with Welch bacillus. The patient had had three or four attacks since 1902. In 1908 he had a severe attack with chills, fever, exhaustion and passage of gas through the penis. Early in 1909, he was examined by Dr. Pederson, who thought he noticed a depression in the bladder. In June 1909, the patient suffered from irritation of the bladder with desire to urinate and tenesmus, which was followed by chills and fever and passage of feces and gas through the penis. Another attack occurred in August.

Operation revealed a large mass, occupying the middle and left portion of the pelvis, which was discovered to be the omentum closely adherent to the sigmoid and bladder. After the omentum was dissected off and the sigmoid lifted up, the fistulous opening into the bladder was seen, and the fistula was dissected out of the bladder and the bladder closed. The sigmoid was found to be enormously thickened. Colostomy was done at the site of the fistulous tract and a catheter was inserted into the bowel. The patient made a good recovery.

The following report gives the observations made at autopsy in a case of diverticulitis:

Postmortem examination of the colon revealed an indurated thickened mass, about 20 cm. above the anus, which completely surrounded the sigmoid, which was 5 or 6 cm. in length, and caused marked stenosis at the intestine at this place, so that even the little finger could pass through it. On the peritoneal surface there was seen a circular starlike constricting mass, and when the intestine was opened there were found, projecting into the lumen just below this constriction, somewhat polypoid, edematous, beginning gangrenous finger-like projections of the mucosa, from 1 to 2 cm. in diameter and several centimeters in length. This constricting area was cut through with difficulty, and it cut like firm fibrous tissue. When this portion was laid open, the mucosa for a length of about 10 cm. was thrown up into large folds which were edematous and dark red, and some were in the early gangrenous stage. No neoplasm could be found at this region and no ulcerations. The wall of the sigmoid was much thickened and infiltrated by firm radiating bands of tissue, which were fibrous in consistency. Immediately below the constriction, for a distance of about 5 cm., were found several circular openings in the mucosa, several millimeters in width, into which a probe could be inserted for a distance of from 1 to 2 cm., evidently sigmoid diverticula, but which do not project beyond the serosa. Immediately above the constriction were found eight or ten similar small diverticula and through the remainder of the large intestine were found about a dozen more. No definite relationship could be made out between these diverticula and the blood vessels, but most of them occurred along the situation of the mesenteric attachment. The openings into these diverticula were lined with smooth mucosa, none of them being ulcerated or gangrenous. Many were filled with feces. The entire colon was filled with semisolid feces. The caput was tremendously distended; its mucosa was reddened, the serosa was purplish. The site of colostomy was in good condition. A portion of the rectum below the constricting area already described was removed separately. The mucosa was somewhat dilated, smooth and pale; in its upper portion it did not show any diverticula, and the portion 5 cm. above the anus was much reddened and was edematous.

Of 16,283 autopsies done at Bellevue Hospital between 1904 and 1930, many of which were limited to the head or the chest, there were 169 cases of diverticulosis and diverticulitis. At the Mayo Clinic, in one third of all the patients examined roentgenographically, diverticulitis or diverticulosis was present.

New ideas are not plainly accepted by medical men. Time, patience and wide publicity are required before general acknowledgment of worth is given to any new routine. This may be both fortunate and unfortunate; fortunate in being "sure you are right before you go ahead," and unfortunate when years are lost before accepting true value. After 230 years, diverticulitis is now more frequently diagnosed and recognized as a surgical disease. While its origin is not yet settled, this is not of great moment. The important thing is in the recognition of the prediverticulitis stage.

Medical treatment of diverticula is an inherited misconception that it has been difficult to overcome.

There is no more chance of aborting diverticulitis by diet than of aborting appendicitis.

Structural defects are surgical and not medical problems.

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ABSTRACT OF DISCUSSION

Dr. Dudley D. Roberts, New York: I can't overlook this opportunity of disagreeing with my friend Dr. Lynch in several particulars. He has stated that in his opinion colonic diverticulosis is a congenital condition. While in a sense this may not seem especially important, such a view fails to take adequate notice of the fact that colonic diverticulosis is especially a disease of middle and old age and occurs in the obese in a preponderating proportion of instances. This fact must not be lost sight of in the differential diagnosis of abdominal complaints. A lower left-sided abdominal pain in a corpulent patient should give rise to a suspicion of diverticulosis or diverticulitis. My opinion is that a fatty infiltration of the wall of the colon is the most probable cause of these multiple pouchings. Again, he said that there was no medical treatment for diverticulosis and diverticulitis. Such a view overlooks the fact that for a number of years massive doses of barium have been used with the greatest success in relieving the discomforts associated with diverticulosis and even in bringing about a betterment of a secondary inflammatory process in the affected area. This is too important a remedy by far to be passed over casually or entirely overlooked. Dr. Thomas Brown has twitted New York with good reason on its devotion to so-called colonic irrigation. I agree that too much cannot be said in condemnation of this as such a general practice. Its actual danger is sometimes seen in acute perforations of diverticula with local peritonitis. This was forcibly called to my attention this winter when within a period of a fortnight two patients were seen in consultation with what was obviously a peritonitis from a ruptured diverticulum. The condition had been unrecognized and both patients had been having colonic irrigations for several days. The cessation of this treatment was followed by entire recovery in the one case without operative treatment. In the second case general peritonitis had already supervened. It seems extremely probable that under some conditions the introduction of any considerable quantity of water into the rectum might well result in the spread of walled off peritonitis when it has resulted from a ruptured diverticulum in the sigmoid. This should be a matter of more general recognition.

Dr. Julius Friedenwald, Baltimore: While most diverticula do not produce symptoms and are usually only accidentally discovered, they may occasion on the other hand symptoms of a most distressing and even serious type. Those that produce symptoms are ordinarily situated in the colon in the region of the sigmoid. It is in this area that infection is most likely to occur, a condition which is the usual cause for the production of symptoms. The symptoms are often misleading and are frequently attributed to mucous colitis, intestinal indigestion and the like. They may, however, become prominent. In acute diverticulitis, the symptoms resemble those of acute appendicitis situated on the left side. In the less acute forms, the pains may be moderate and are not infrequently associated with disturbances of the bladder; in others, they may be of an obstructive character; in still others, of ulceration, abscess formation and even perforation. The differential diagnosis between carcinoma and chronic diverticulitis is often difficult and, as William Mayo has pointed out, carcinoma may even develop on the basis of a diverticulum. A point in differential diagnosis is that in chronic diverticulitis bleeding is uncommon, while it is frequent in carcinoma. Diverticulitis is easily detected by means of the x-rays, the diverticula retaining the barium, frequently for days following its complete expulsion from the intestine. Small rounded shadows can be noted in the affected areas. It is important in doubtful instances to examine the patient sometime following the evacuation of the barium, that is, on the second or third day, for the lumen of the bowel may be so completely filled with this substance as to obscure the actual condition. In a woman, aged 50, under my care, in whom, because of recurrent attacks of left-sided pain associated with severe constipation and extreme tenderness in the left lower quadrant of the abdomen, diverticulitis was suspected, the roentgen diagnosis of mucous colitis was reported. The pain continued, and since it radiated into the left lumbar region, a cystoscopic examination was advised ten days later. In the course of this examination, at which roentgenograms were again taken, the urologist noted a well advanced diverticulitis of the sigmoid. It was evident that the intestine was still so completely filled with barium at the time of the first examination as to obscure the real picture. When diverticulitis is suspected and not detected at the first roentgen examination, the bowel should be completely emptied of the barium and another examination made a day or two later, when the diverticula, if present, will still be found filled. If the diagnosis, however, still remains doubtful, one should take advantage of the combined method, consisting of the barium enema and air inflation as advised by Fisher and recently by Weber, by means of which not only polypi but also diverticula can be more certainly visualized. In the treatment, when the acute condition occurs, one is faced with the same problem as that of acute appendicitis and the question of immediate surgical intervention must always be considered. However, in the more chronic cases in which the symptoms do not appear urgent, large doses of barium taken once or twice weekly are often exceedingly valuable in relieving the symptoms as well as in arresting the progress of the condition. Operative intervention should be advised in intractable cases.

RADIOTHERAPY AND SURGERY IN ADVANCED CANCER OF THE BREAST *

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Clinical experience of over a quarter of a century has firmly established the efficacy of surgery, radium and x-rays in the treatment of cancer generally. However, the relative importance of surgery and irradiation varies with the different types of cancer. To take two instances: The clinical study of the last two decades has definitely established the fact that, in cancer of the cervix, irradiation gives results superior to surgery, and the former is today the method of choice. In cancer of the breast, on the other hand, surgery remains the most important therapeutic method, and irradiation is second in importance. This striking phenomenon is, in my opinion, due to the difference in the clinical course of these two types of cancer.

Cancer of the cervix invades the surrounding normal tissues (rectum, urinary bladder, ureters and blood vessels) and regional lymph nodes. Very rarely are metastases formed in distant regions and then only late in the course of the disease.

In carcinoma of the breast, metastases in the distant regions (lymph nodes, lungs, skeleton, liver) appear frequently and early in the course of the disease.

In view of this clinical behavior and the proximity of vital organs to the cervix, surgery will more readily leave behind remnants of cancerous tissue than irradiation, which may at a distance destroy all the cancerous tissue while it leaves the adjoining normal tissue intact.

In cancer of the breast there is less danger of injuring vital organs, and the surgical procedure may be more complete. Furthermore, surgery acts promptly in removing the whole tumor and thus stops immediately the metastatic transportation of tumor tissue, while irradiation acts comparatively slowly and leaves ample time for such transports.

This clinical behavior of cancer of the breast is far from being true in every instance. In reality, various types of cancer of the breast differ greatly in their clinical course, showing greater or lesser rapidity of the local growth and great variations in the frequency of the occurrence of distant metastases. A scirrhous carcinoma of the breast may remain localized for years without disturbing the rest of the organism, while a medullary carcinoma may kill the patient in a few months or even weeks. In some cases the carcinoma of the breast which appears to be in a comparatively early stage will recur locally soon after a most radical operation, and throughout the whole subsequent course of the disease no distant metastases will be noted anywhere. In other cases the result of the operation will be apparently perfect; there will be no local recurrence and yet, as late as twenty-years after the operation, a metastasis will occur in the head of a femur or in the pelvic bones.

Experimental as well as clinical investigations which I [1] have made on the mechanism of formation of metastases in cancer indicate that a secondary metastatic tumor forms only when the transported cancer cells succeed in overcoming the inhibiting powers of the normal tissues of the new locus. Otherwise it may be surrounded by a connective tissue barrier and destroyed. This phenomenon has a practical significance. When the areas in which one knows by experience that metastases occur are irradiated prophylactically, it is sufficient to suppress the proliferating power of the implanted cancer cells without actually killing them.

Notwithstanding these clinical differences, the early formation of metastases is the preponderating manifestation of malignancy in cancer of the breast, and therefore surgery remains the most important method of therapy.

ADVANCED CANCER OF THE BREAST

The next point to determine is whether surgery alone without the aid of radiotherapy ever suffices in a fully developed cancer of the breast. Many surgeons still maintain that irradiation adds nothing to the results of a radical mastectomy.

In 1929, a committee on the treatment of malignant diseases with radium and x-rays of the American College of Surgeons reported [2] on cancer of the breast. The committee has tabulated statistically 774 cases from nine hospitals in four towns. The general conclusion was reached that roentgen treatment does not add anything to the results of radical surgery in the early cases but that the value of x-rays in the treatment of recurrence after operation is established. These two conclusions are evidently contradictory, to say the least. If results can be obtained when a recurrence is already established, it should be easier to succeed when the treatment is begun before the recurrence appears and when there are consequently only microscopic islands of cancer cells to overcome. The only plausible explanation of this discrepancy is that in series of cases studied by the committee the recurrences were irradiated properly while the prophylactic irradiation, on the other hand, was given in a half-hearted manner. Indeed, the committee admits that an accurate statement of the details of roentgen treatment is not possible. "At times low voltage was given, in other hospitals 'more penetrating' radiation was available. Radium was used in only a very small number of cases."

As a result of a quarter of a century of study, covering a large number of cases of cancer of the breast in clinic, hospital and private practice, I can fully subscribe to the following statement of Dr. W. Sampson Handley.[3]

> The key to further advances in the operative treatment of malignant disease is *not* to be found in statistical studies in which large numbers of cases are *superficially* studied. It is in the ward and laboratory rather than in the bureau of health statistics that the information we require is to be *sought*.

In the present paper I shall deal with the advanced cancer of the breast and not with early cancer, and for the former the value of irradiation is admitted even by the committee of the College of Surgeons. Moreover, these statistical investigations reveal the following most important phenomena: Of the 774 cases studied by the committee, about 15 per cent showed no glandular involvement, and of these patients about 57 per cent, or about 8 per cent of the whole number, remained well for five years. The involvement of the axillary lymph nodes was present in 33 per cent, and of these only 16 per cent, or about 5 per cent of the whole number of patients, remained well for five years after a radical operation.

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* Read before the Section on Radiology at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 11, 1931.

[1] Levin, Isaac: J. Exper. Med. **18**: 397, 1913; Proc. Path. Soc. **15**: 8, 1915; Ann. Surg. **65**: 326 (March) 1917; J. Nerv. & Ment. Dis. **45**: 481 (June) 1917.

[2] Greenough, B. B.: Surg., Gynec. & Obst. **49**: 247 (Aug.) 1929.

[3] Handley, W. S.: Surg., Gynec. & Obst. **45**: 721 (Dec.) 1927.

This statistical analysis shows that a cancer of the breast in which the axillary lymph nodes are involved is an advanced cancer of the breast and, further, that no more than 13 per cent of all the 774 patients whose cases were analyzed remained well five years after the operation, and therefore 87 per cent of all cases of cancer of the breast which come for treatment are advanced cases. These advanced cancers of the breast and not the early cases present today the chief problem in therapy.

Different types of advanced cancer of the breast show different grades of malignancy, take a different clinical course and require different methods of treatment. Broders[4] has initiated a morphologic classification of grades of malignancy. Lee and Stubenbord,[5] however, have shown that, in cancer of the breast, histologic grading of malignancy is far less effective than clinical grading, and my experience fully coincides with this conclusion.

In order to discuss systematically the relative therapeutic value of surgery and irradiation in advanced cancer of the breast, it is best to classify the types of cancer into groups and discuss each group separately. The following eight groups may be considered: (1) primary tumor movable over the chest wall and the axillary lymph nodes involved; (2) similar to group 1 but with involvement of supraclavicular or infraclavicular lymph nodes; (3) similar to group 2, but with ulceration of the primary tumor; (4) primary tumor attached to the chest wall; (5) local recurrence after a radical mastectomy; (6) metastases in the lungs; (7) metastases in the skeleton, and (8) metastases in the liver.

Each of these groups requires a different therapeutic technic and will therefore be discussed separately.

METASTASES IN AXILLARY LYMPH NODES

As previously stated, when the lymph nodes in the axilla are involved, the condition must be considered an advanced cancer of the breast; surgery alone succeeds in only about 16 per cent of the cases in which operation is performed, and the aid of irradiation is quite evidently indicated.

Whenever both the tumor of the breast and the one in the axilla are freely movable over the chest wall and the underlying tissues, the case is an operable one and requires an immediate radical mastectomy.

Preoperative irradiation should not be given in this type of case, since it would delay the operation. Occasionally the patient may even subsequently refuse the operation and insist on the continuation of the radiotherapy.

On the other hand, postoperative irradiation should begin immediately after the operation; in fact, simultaneously with it.

I begin the treatment of these cases with a radical mastectomy and, if the axillary lymph nodes show actual involvement, I then place buried capillaries of radon in the axilla and in the parasternal regions. This is followed subsequently by a course of high voltage roentgen treatment and surface application of radium.

The superiority of this planned systematic combination of surgery with irradiation over unsupported surgery is self evident, since the value of irradiation therapy in the treatment of recurrences is admittedly established.

Again it is extremely difficult to offer irrefutable statistical evidence, particularly since even five years' cure does not mean that the condition may not return as a local recurrence or a metastasis.

The ability to keep the disease in check for a long period of time in a number of cases is a valid proof of the efficiency of a therapeutic measure. Handley[3] devotes the major part of his paper to the presentation of the clinical course of one patient who had a left mastectomy done in 1912, followed by roentgen treatments and radium insertions. Ten years later, a right mastectomy was done. The patient died two years later, or twelve years after the first operation, from metastases in the lungs. The patient remained active and well till two weeks before death. This case shows clearly the efficiency of radium therapy. The following are cases of a similar character which I have treated:

CASE 1.—E. C., a woman, aged 24, was admitted to the hospital, April 29, 1921, with carcinoma of the left breast and a large tumor in the axilla. I did a radical mastectomy and inserted capillaries of radon into the axilla and the part of the chest wall corresponding to the breast tumor. This was followed by roentgen treatment and surface application of radium. No metastases were found at the time of operation in the lungs, skeleton, liver or the other breast.

In October, 1923, a tumor was found in the right breast, with involvement of the axilla. I did a mastectomy of the right breast, with insertion of radon, which was then followed by roentgen treatment and surface application of radium. The patient died, Jan. 10, 1929, nearly eight years after the first operation, of pulmonary metastases. With the exception of the last few weeks, the patient was well throughout the eight years and worked, supporting herself and her child.

CASE 2.—B. B., a woman, aged 49, was admitted to the hospital, June 26, 1920, with carcinoma of the right breast, and a radical mastectomy was done. Carcinoma was found in the axillary lymph nodes. A carcinoma nodule was also found in the right parasternal region corresponding to the third rib. I immediately placed capsules of radium over the parasternal region and in the axilla. Since then, the patient has had several courses of roentgen therapy and surface application of radium. Today, eleven years since the mastectomy, the patient is clinically well and shows no evidence of recurrence or metastases.

In the first group of cases of advanced cancer of the breast, a certain though small percentage of cases may be cured and therefore this is the primary aim in this group. A complete radical mastectomy must be done and generally an attempt made at complete eradication of the disease. All the other groups to be discussed later are beyond any chance of complete recovery, and the aim of therapy is prolongation of life and creation of a useful or at least comfortable life. In other words, the treatment is, in the main, palliative.

METASTASES IN SUPRACLAVICULAR LYMPH NODES

When cancer of the breast shows the involvement of both the axillary and supraclavicular (less frequently infraclavicular) lymph nodes, the chances of complete recovery are minimal. None the less, a mastectomy should be done when the primary tumor is movable over the chest wall. A separate incision is made over the clavicle, and radon capillaries are inserted in the axilla, the supraclavicular region and the chest. This is followed by high voltage roentgen therapy and surface application of radium. I have had a number of patients who lived in comfort for three or four years with such treatment. But they all ultimately succumb to the disease.

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[4] Broders, A. C.: Arch. Path. & Lab. Med. 2: 376 (Sept.) 1926.

[5] Lee, B. J., and Stubenbord, J. G.: Surg., Gynec. & Obst. 47: 812 (Dec.) 1928.

ULCERATED CANCER OF THE BREAST

In the previous two groups, surgery remains the major method of therapy and the irradiation a very important adjuvant which must follow and not precede surgery. In the following groups the irradiation is the major procedure, it always antecedes surgery, and the latter is employed only occasionally.

A patient suffering from a large ulcerating tumor of the breast which constantly secretes a foul discharge is a burden to herself and to her surroundings. When there is no evidence of multiple metastatic nodules in the skin surrounding the ulcerating tumor, the case is treated in the following manner: An insertion of radon capillaries is made into and around the ulcerated area of the tumor, and this is followed by surface applications of radium and by roentgen therapy. After a period of from four to six weeks, the ulcer generally becomes diminished in size and the tumor becomes more freely movable over the chest wall. A mastectomy is then done, with the removal of the pectoral muscles and with a more or less complete cleaning of the axilla, depending on the conditions found. Only enough skin is removed to excise widely the ulcerated area and to allow for an immediate primary union.

It must be clearly understood that this represents only a palliative procedure. It seems, however, not only to prolong life but mainly to make the life of the patient more bearable. It is much more comfortable for the patient, both bodily and mentally, to succumb ultimately to metastases than to live for months with a large fungating carcinomatous ulcer.

The following cases serve to illustrate this group:

Case 3.—S. C., a white woman, aged 69, was admitted to the hospital, May 22, 1924, with advanced cancer of the right breast. On examination there was found a stony hard mass in the upper half of the breast. It was about the size of a grapefruit and was attached to the skin but was movable off the deep structure. There was an ulceration, roughly circular and 6 cm. in diameter, overlying the central part of the tumor. The right nipple was drawn upward toward the tumor. In the right axilla there was a large stony hard mass which was movable over the underlying tissues. No distant metastases were noted. The diagnosis was proved microscopically. June 21, radon capillaries were inserted into the ulcerated area of the breast. The tumor shrank, and the ulceration diminished in size. A mastectomy was performed, July 24. The wound healed by primary union and the patient improved rapidly in her general condition. When she was last seen, sixteen months after the operation, there was no evidence of any local recurrence or metastases.

Case 4.—M. D., a white woman, aged 77, was admitted to the hospital, Aug. 3, 1929, with an advanced cancer of the right breast. On examination the right breast appeared smaller than the left and was pulled to the right and upward. About 3 cm. above and to the right of the nipple there was noted a round ulcer, 2 cm. in diameter, somewhat elevated above the surface of the breast, and of a pinkish red. On palpation the base of the ulcer was very hard and was attached to a diffuse mass which occupied the right upper quadrant of the breast. The right axilla contained several lymph nodes hard in consistency. The diagnosis of carcinoma was proved microscopically. August 27, capillaries of radon were inserted into the ulcerated area of the tumor. September 5, the mass diminished in size and became softer in consistency. October 29, a mastectomy was done. The wound healed by primary union, and the local and general condition has been good since.

In all these cases the mastectomy was followed by high voltage roentgen therapy and surface application of radium.

BREAST TUMORS ATTACHED TO THE CHEST WALL

In all the cases of the fourth group the tumor is attached to the chest wall and, as long as this condition lasts, surgical removal is contraindicated, since a severe local recurrence would follow the operation. In this group, therefore, radiation therapy is the only method to employ in the majority of cases. Whether the primary breast tumor is ulcerated or not, an insertion of radon should be made into the primary tumor and into the metastases in the axilla, which are always present in these cases. This is followed by high voltage roentgen therapy and surface application of radium. The tumor usually shrinks under this treatment, and the ulceration is covered with an epidermis.

In a certain number of these cases the tumor not only shrinks but becomes movable over the chest wall. In such an instance a palliative mastectomy may be performed with temporary benefit and possible prolongation of life. In the following cases the tumors became movable after the intratumoral insertion of radon:

Case 5.—M. E., a white woman, aged 63, was admitted to the hospital, May 21, 1925, with advanced cancer of the right breast. On examination of the right breast, the nipple was found replaced by a hard indurated mass. Another mass was noted in the lower outer quadrant of the breast, ulcerated in the center. The masses were firmly adherent to the chest wall. The diagnosis of carcinoma was proved microscopically. June 10, a radon insertion was done into the two carcinomatous masses of the breast. This was followed by high voltage roentgen therapy. August 3, the tumors were found to be freely movable over the chest wall, and on August 12 a palliative mastectomy was done. The wound healed by primary union and when the patient was seen last, eighteen months later, there was no evidence of any local recurrence or metastases.

Case 6.—G. M., a white woman, aged 60, was admitted to the hospital, Feb. 29, 1924, with advanced cancer of the left breast. On examination of the left breast there was noted in the upper outer quadrant a tumor mass measuring 6 by 2 cm., firmly adherent to the chest wall and ulcerated in the center. No metastases were found in the chest or skeleton. March 27, radon capillaries were inserted into the tumor. On April 14 and still more on April 29, the tumor appeared smaller in size and freely movable over the chest wall. May 8, the mastectomy was done, the wound healed and the patient left the hospital. Feb. 3, 1925, roentgen examination showed the appearance of skeletal metastases. The patient died, May 5, about fifteen months after the beginning of the treatment.

This purely palliative treatment of these patients certainly added greatly to their comfort.

LOCAL RECURRENCE AFTER MASTECTOMY

Recurrent tumors in the mastectomy field are most usually adherent to the chest wall and therefore, like the tumors in group 4, must be treated by irradiation. The only surgical procedure in this type of case consists in an incision over the tumor mass so as to facilitate the intratumoral insertion of radon and possibly in doing a biopsy. Only temporary improvement may be obtained in this group of cases.

None the less, as may be seen from the following case, very satisfactory results may follow this course of treatment:

Case 7.—A. E., a woman, aged 58, had a radical mastectomy done for carcinoma of the left breast with involvement of the axilla, in September, 1926. Oct. 31, 1927, a local recurrence appeared in the sternocostal junction corresponding to the third and fourth rib. I made an incision over the tumor mass, performed a biopsy, which gave positive results, and did an insertion of radon capillaries. This was followed by high voltage roentgen therapy and surface application of radium. At present, nearly five years after the mastectomy, there is no evidence of any local recurrence or metastases anywhere, and the patient is comfortable and takes care of her work.

METASTASES IN THE LUNGS

The life of a patient with pulmonary metastases secondary to a cancer of the breast is short and extremely uncomfortable. The condition is hopeless, and, as a general rule, irradiation does not improve it. None the less, all these patients should be given the benefit of radiotherapy, since occasionally striking temporary improvement may be obtained, as is well seen in the following case:

Case 8.—M. P., a white woman, aged 39, was admitted to the hospital, March 25, 1930, with a history of having noticed a mass in the right breast eighteen months previously and an ulceration for the last six months. The patient also complained of dyspnea and cough.

On examination the right breast was transformed in its entirety into a flat hard and nodular tumor mass, irregularly round in outline, measuring about 15 cm. in diameter and about 3 cm. in thickness, firmly adherent to the chest wall. Surrounding and partly undermining the nipple there was a flat ulceration measuring about 8 cm. in diameter. A hard and nodular tumor, measuring 3 cm. long and 2 cm. thick, was found in the axilla. On percussion of the chest the right side showed dulness everywhere and on auscultation total loss of breath sounds.

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The therapeutic result of irradiation in this case was certainly remarkable, and had it not been for the cerebral metastasis which is comparatively infrequent in cancer of the breast, the patient's life might have been prolonged still further.

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This case is very remarkable in view of the complete generalization and immense amount of metastatic carcinoma throughout the organism and also in view of the large amount of therapy that the patient received in the course of two and one-half years. The clinical result is very striking. While it is fairly certain that the carcinoma tissue had not all been destroyed within the organism, a bedridden patient with paralysis of both lower extremities, with severe pain on the least movement of any joint, was able to leave the hospital in a condition in which she could walk about and take care of herself.

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Metastases in the liver secondary to carcinoma of the breast usually indicate generalized carcinomatosis of the organism, and such patients are therefore beyond any type of specific therapy.

In all types of advanced cancer of the breast, it is necessary to examine at frequent intervals the lungs, liver and skeleton, and to change the methods of treatment or to cease treatment entirely, depending on the condition.

It is important to know in this connection that in a patient in apparently good general condition, and suffering possibly only from local recurrence, gastric symptoms may suddenly develop, with severe uncontrollable vomiting. This is frequently the first symptom of the development of metastasis in the liver.

SUMMARY

About 87 per cent of all patients with cancer of the breast come for treatment when already in the advanced stage of the disease.

However, distressing symptoms may be relieved and life prolonged considerably in many of these advanced cases by proper coordination between surgery, radium and roentgen therapy.

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At present not the early but the advanced cancer of the breast presents the most pressing therapeutic problem.

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ABSTRACT OF DISCUSSION

Dr. Leon T. Le Wald, New York: Dr. Pfahler in his statistics has made the statement that after five years he has had 30 per cent of the patients free from disease after radiation treatment of primary inoperable cancer of the breast. This is an interesting percentage as against the various surgical percentages. The surgical statistics that I have heard vary from 16 per cent of five-year cures to somewhere in the thirties; so that when one matches these statistics one finds that radiation therapy holds its own versus surgery, even in certain cases that are regarded as operable. In the operable cases, various statistics do not give much more than 22 per cent of five-year cures following operation. Dr. Burton J. Lee has now a series of operable cases in which the patients have been treated by irradiation alone with a favorable outcome. Dr. Levin has been fair in stating that he would have the first group operated on prior to radiation but have the radiation therapy applied immediately following or at the same time in the open wound, inserting radon or using other methods of applying radium. As a neutral party I feel that he has amply proved his point.

Dr. George E. Pfahler, Philadelphia: We agree that if cancer of the breast is strictly confined to the breast, the surgeon can certainly take it away. Some men point to as high as 100 per cent recoveries in such cases, but only after they have passed the specimen to the pathologist and he has made a careful study do they find that the disease is confined to the breast. Then if the disease is found to have spread to the axilla, it is not classed as a case of primary carcinoma of the breast. That is all very well scientifically, but it doesn't apply so well to the individual woman who comes to us for advice as to treatment. When there are palpable lymph nodes in the axilla or the supraclavicular region, preliminary irradiation by means of the x-rays before operation would give the greatest chance of recovery. Dr. Lee showed, in a symposium before the American Radium Society two days ago, that in about 42 per cent of the cases in which there were no palpable lymph nodes metastasis was still found in the axilla. Therefore one must assume that even though lymph nodes are not palpable such lymph involvements are liable to be present, and one must treat on that basis. That is the reason for considering an early case from a radiologic standpoint. Samson Handley says that when a case of cancer of the breast comes to the surgeon it is already an intrathoracic disease. The preliminary irradiation, consisting of 100 or at least 90 per cent of an erythema dose given over the axilla and supraclavicular region, over the mediastinal space and perhaps over the breast areas, though that is less important, will be helpful in preventing recurrences. I reported before the American Radium Society on 1,022 cases of carcinoma of the breast that were treated by irradiation. The best results were obtained in the cases in which surgery and irradiation were combined when axillary lymph nodes were involved. That applies, as Dr. Levin has said, to at least 87 per cent. Dr. Lee estimated the group that comes with the disease confined to the breast as 6 per cent; therefore, 94 per cent must be considered in relation to metastasis. In cases in which we had irradiation combined with surgery (inoperable cases with lymphatic involvement), 56 per cent were symptom-free at the end of five years. The successful results from irradiation in that group of cases are somewhere between 15 and 22 per cent, but even if one takes the highest point, 22 per cent, one still gets two and one-half times as many well as one will if he adds to the irradiation the primary cases.

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Clinical Notes, Suggestions and New Instruments

TRAUMATIC PNEUMOCEPHALUS

Charles F. Thompson, M.D., and Jewett V. Reed, M.D.
Indianapolis

At the meeting of the Philadelphia Neurological Society, Oct. 24, 1930, Miller, Klemmer and Snoke[1] reported a case of traumatic pneumocephalus and discussed the rarity of recovery following this condition. Including their case they could find only seven instances of recovery reported in the literature. Their table of recovery is copied herewith, to which is added our case.

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The following is a summary of our case of traumatic pneumocephalus: C. D., a man, aged 37, Negro, was taken to the Indianapolis City Hospital, Aug. 19, 1930, following an accident in which he fell about 15 feet, striking the right side of the head.

Examination showed the patient to be in a semiconscious condition. Above the right ear was an abrasion of the scalp. There was a profuse bloody discharge from the right ear. This blood did not clot, suggesting a mixture with cerebrospinal fluid. The right pupil was larger than the left. The patient was too stuporous to answer questions but he could be made to move both arms and legs voluntarily. The pulse was 60, the blood pressure 92 systolic and 54 diastolic, and respiration 18. Marked emesis was present.

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tion of radon capillaries. This was followed by high voltage roentgen therapy and surface application of radium. At present, nearly five years after the mastectomy, there is no evidence of any local recurrence or metastases anywhere, and the patient is comfortable and takes care of her work.

METASTASES IN THE LUNGS

The life of a patient with pulmonary metastases secondary to a cancer of the breast is short and extremely uncomfortable. The condition is hopeless, and, as a general rule, irradiation does not improve it. None the less, all these patients should be given the benefit of radiotherapy, since occasionally striking temporary improvement may be obtained, as is well seen in the following case:

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The wound was cleaned and dressed. Sterile gauze was placed over the discharging ear, and 50 cc. of 50 per cent dextrose was given intravenously.

In twenty-four hours his state of semiconsciousness persisted. He still vomited frequently. The corneal reflex was absent on the right side and both the orbicularis oculi and levator palpebrae superioris of the same side were paralytic, together with the muscles of expression, indicating injury to the third, fifth and seventh cranial nerves on the right. The amount of drainage from the right ear canal continued the same but its character changed to a serosanguineous type.

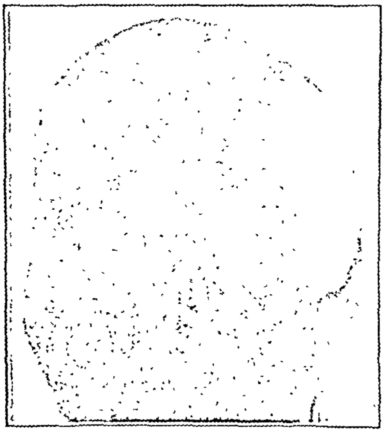

Fig. 1.—Anteroposterior view showing air in cerebral ventricles and subarachnoidal space.

On the third day roentgenograms of the skull disclosed a linear fracture in the right temporal area extending downward into the midportion of the mastoid portion of the temporal bone. The right ventricle was filled with air and there was also air over the surface of the brain in the anterior portion of the right frontal area. Up until this time there had been a copious discharge of blood stained cerebrospinal fluid from the right ear. On the fourth day this discharge stopped. The patient's general condition, however, remained the same. A lumbar puncture was then done which showed a pressure of 15 mm. of mercury with blood tinged cerebrospinal fluid. Eight cubic centimeters of this fluid was withdrawn until the manometer read 7 mm. of mercury. This procedure was repeated every forty-eight hours and after three punctures the patient's consciousness was restored and the pulse rate returned to normal.

We do not consider it wise to do a lumbar puncture in head injuries when there is a leakage of cerebrospinal fluid through a compound fracture of the skull, as there is some danger of so reducing the cerebrospinal pressure that there might be an aspiration of infected material at the site of fracture. In this case when the drainage from the meatus ceased we felt that the puncture was safe and, in fact, indicated.

The patient was discharged on the twentieth day, walking with a slightly spastic gait, with all tendon reflexes exaggerated, complete paralysis of the muscles of expression on the right side, partial loss of hearing in the right ear, partial paralysis of the right orbicularis oculi and levator muscle of the upper lid, partial paralysis of all extra-ocular muscles of the right eye except the superior oblique and the lateral rectus, and paresis of the muscles of mastication on the right side. There was effort cephalalgia of severe degree.

The patient returned to work in December, 1930, practically free from all symptoms except slight disturbance in gait and right facial paralysis.

When last examined, in September, 1931, the patient stated that he had continued to work, without headache, facial disturbance or diplopia, but that marked deafness in the right ear persisted. At times he complained of stiffness in his legs. Examination showed increased knee jerks but was otherwise negative. Right facial paralysis was almost entirely cleared up, so that it was not noticeable except on careful examination.

This case may be summarized as one demonstrating traumatic pneumocephalus in which the air was admitted to the subarachnoid space through simple fracture of the mastoid air cells and thence to the right ventricle by way of the foramina of Luschka and Magendie. Whether or not the pneumocephalus was a causative factor in the symptoms will remain in the realm of conjecture because the amount of cerebral concussion was sufficient to cause all the functional disturbance and clinical symptoms in this man.

COMMENT

Air may be introduced within the cranial cavity, concurrently with head injuries, by compound fractures of the skull with laceration of the dura mater, by deep perforating wounds of the gun-shot type, and by simple fractures involving the cranial air sinuses. Rarely gas-producing organisms may be the source of intracranial air in an infected wound which has perforated the skull. The air may occupy the subarachnoid space, the subdural space, the brain or the ventricles, and Dandy, in reviewing twenty-eight cases, cites fractures which render air passage from the mastoid cells and paranasal sinuses into the aforementioned spaces as the most frequent cause.

The mechanism of this phenomenon, in the presence of a trans-sinus fracture, is one of two types: suction of air replacing overflow of cerebrospinal fluid as in the example of an inverted narrow-necked bottle which contains fluid; or the sudden increase of air pressure within an air sinus at the moment of coughing or sneezing over the prevailing intracranial pressure. In addition to either of these mechanisms, the ball valve action of a bone fragment, tissue flap or possible foreign body may aid in the retention of air within the cranium. Thus it may be seen that air may pass through the fracture line intermittently as long as an avenue exists and buoyancy admits it to any part of the subarachnoid space and ventricular system. Humes has demonstrated that from fourteen to twenty-one days' time is required for the absorption of air filling the ventricles in artificial pneumocephalus; hence it is readily understood how air may persist in the ventricles for months after a fracture, as reported in some cases, in which the volume rate of introduction exceeds that of absorption.

Pneumocephalus occurring at the time of a severe head injury is merely an unusual clinical phenomenon, any possible symptoms being superseded by those of concussion, as was true in our case. However, if any of the classic signs of increased intracranial pressure persist, after any possible temporary brain trauma has subsided, otorrhea or rhinorrhea with sneezing is sufficient to make a diagnosis of pneumocephalus. Roentgenologic examination should confirm the diagnosis.

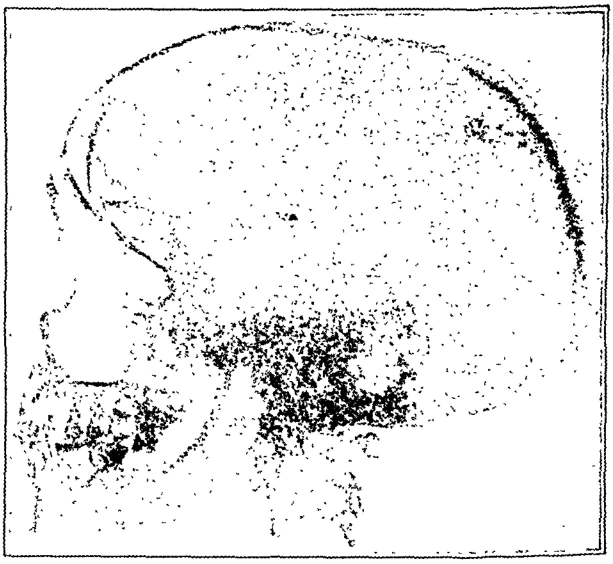

Fig. 2.—Lateral view showing the same and in addition a linear fracture of the temporal bone.

The prognosis in pneumocephalus of traumatic type on the whole is good. It may be noted with interest that intracranial infection complicating a cerebrospinal fistula occurred in only 25 per cent of the reported cases. Spontaneous closure of the draining sinus is accomplished in the majority of cases, and the intracranial air is absorbed by natural processes.

The successful treatment of those cases of pneumocephalus with a cerebrospinal fistula which does not heal spontaneously depends on surgical closure of the tract. Dandy[2] reports the use of fascia lata for the closure of a dural sinus in the frontal area. Surgical closure should be obtained as soon as the diagnosis is made; time spent in waiting for spontaneous healing is needless procrastination, for such plastic operations carry little risk.

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[2] Dandy, W. E.: Pneumocephalus (Intracranial Pneumotocele or Aerocele), Arch. Surg. **12**: 949-982 (May) 1926.

320 North Meridian Street.

Council on Pharmacy and Chemistry

REPORTS OF THE COUNCIL

The Council has authorized publication of the following reports.
W. A. Puckner, Secretary.

IODOXYBENZOATES OMITTED FROM N. N. R.

The known action of iodoxybenzoates led to clinical application of the drug in the treatment of arthritis by Young and Youmans.

In 1926 the Council reported on the clinical work of Young and Youmans, stating that a selected number of clinicians had been supplied with *o*-iodoxybenzoic acid prepared under the supervision of Young and Youmans for controlled hospital trials, and that the A. M. A. Chemical Laboratory was carrying out a chemical study with the intention of elaborating tests and standards which would insure a satisfactory supply of salts of *o*-iodoxybenzoic acid.

In consideration of the further reports by Young and Youmans and confirmatory evidence by others, the Council in 1927 admitted ammonium *o*-iodoxybenzoate with the standards elaborated by the A. M. A Chemical Laboratory to New and Nonofficial Remedies under the nonproprietary name amiodoxyl benzoate and admitted the product of the Abbott Laboratories, which had been found to meet the adopted standards, as Amiodoxyl Benzoate-Abbott.

Confirmatory reports, however, failed to establish the usefulness of the drug and in 1930 the Council decided to omit the drug from New and Nonofficial Remedies unless new and favorable evidence became available. Such evidence had not become available with the close of 1931 and, accordingly, the Council directed omission of the article Iodoxybenzoates and of amiodoxyl benzoate with the accepted brand Amiodoxyl Benzoate-Abbott.

SQUIBB ADEX TABLETS 10 D NOT ACCEPTABLE FOR N. N. R.

E. R. Squibb & Sons requested recognition of the name Squibb Adex Tablets 10 D for a cod liver oil concentrate fortified by addition of viosterol. The firm stated: "In our work on the development of the cod liver oil concentrate tablet which has heretofore been sold under the name of 'Adex,' we have developed a wholly new and novel preparation, the active therapeutic ingredients of which are vitamins A and D in exceptionally high concentration, and so compounded as to preserve the concentration unimpaired for years. This new tablet is not a mere concentration of cod liver oil. The vitamin A in the tablet and a part of its vitamin D are obtained by concentrating cod liver oil, but the remainder of the vitamin D in the new tablet is irradiated ergosterol." In regard to the stability of these tablets, the firm wrote: "By actual test the vitamin content of these tablets is known to be stable with no detectable deterioration either of vitamin A or D over a period of more than thirty-four months, the time thus far elapsed since our stability tests started. There are four reasons for this remarkable concentration and stability. 1. A special manufacturing process is used which protects the vitamins throughout the entire time or processing. 2. An ingredient is added which acts as an active protection against deterioration of the vitamins, particularly vitamin A. 3. A specially devised coating is applied under controlled conditions which further guards against loss of vitamin potency, and 4, the tablets are packaged under carbon dioxide. Some of these steps are protected by patent application and others are not of a nature capable of such protection. If the Council desires this information in greater detail, we will supply it. So far as we are informed, no other tablet receives this unique treatment looking toward the preservation against deterioration of its labile-active ingredients."

The Council has repeatedly called attention to the fundamental importance of its rule designed to prevent the multiplication of names for the same product. This rule provides that the discoverer of a new product or of a new and sufficiently important therapeutic use for an old product may give it an arbitrary name. Squibb & Sons are not the first to prepare a cod liver oil concentrate nor does the addition of viosterol to a cod liver oil concentrate present a discovery. While Squibb & Sons deserve credit for the efforts which they have made toward increasing the potency and stability of cod liver oil concentrates, other firms which are engaged in the marketing of such products have worked in the same direction.

The Council considered the arguments advanced by Squibb & Sons in favor of the recognition of their proprietary name for their cod liver oil concentrate with viosterol and decided that in conformity with its rules governing the recognition of proprietary names, it cannot recognize the name Squibb Adex Tablets 10 D because the application of a proprietary name to this product is not in the interest of the medical profession or the public and declared Squibb Adex Tablets 10 D unacceptable for New and Nonofficial Remedies.

Committee on Foods

The following products have been accepted by the Committee on Foods of the American Medical Association following any necessary corrections of the labels and advertising to conform to the Rules and Regulations. These products are approved for advertising in the publications of the American Medical Association, and for general promulgation to the public. They will be included in the Book of Accepted Foods to be published by the American Medical Association.
Raymond Hertwig, Secretary.

BUTTER CREAM BREAD

Manufacturer.—Anchor Bread Company, Sacramento, Calif.

Description.—A white bread made by the sponge dough method.

Manufacture.—The sponge dough ingredients, patent flours of Western and Northwestern wheats, water, salt, yeast and a yeast food containing calcium sulphate, ammonium chloride, sodium chloride and potassium bromate, are mixed in a high speed mixer. The sponge dough is fermented for from four to five hours, after which are added flour, water, salt, sucrose, butter and cream to make the completed dough, which is cut into pieces of desired weight. The pieces are fermented for a short time, molded into loaf form, panned, further fermented, baked for from thirty to thirty-five minutes, cooled, and wrapped in wax-paper.

The factory, equipment and storage rooms for the materials used are kept in strictly sanitary condition.

Analysis (submitted by manufacturer).—

	per ounce
Moisture (entire loaf)	35.5
Ash	0.8
Fat (ether extraction method)	2.5
Protein (N × 6.25)	9.6
Crude fiber	0.2
Carbohydrates other than crude fiber (by difference)	51.4

Calories.—2.7 per gram; 77 per ounce.

Claims of Manufacturer.—A bread of good quality.

VINCENNES "CLASS A" BRAND TOMATO JUICE AND VINCO TOMATO JUICE

Manufacturer.—Vincennes Packing Corporation, Vincennes, Ind.

Description.—Pasteurized tomato juice with added salt; retains in high degree the vitamin content of the raw juice.

Manufacture, Chemical Analysis, Calories, Micro-Organisms, Vitamins, Claims of Manufacturer.—See these sections for Alice of Old Vincennes Tomato Juice (The Journal, Feb. 20, 1932, p. 640).

RADIOLOGIC SERVICE IN THE UNITED STATES

REPORT BY THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

The work of preparing a list of acceptable "radiologic laboratories and departments of radiology" was assigned to the Council on Medical Education and Hospitals by the House of Delegates at the Minneapolis session in 1928. The "Essentials" were prepared by the Council in collaboration with a large number of specialists in the field of radiology. Suitable questionnaires were prepared in the same manner and were mailed to all the physicians who were known to be engaged in the practice of radiology and roentgenology. The majority of the physicians so engaged returned their questionnaires and they were considered for the list. To assist the Council in preparing the list, the officials of the two leading radiologic societies cooperated with the Council's special committee by appointing qualified radiologists in all parts of the country to act as advisers. These advisers, numbering 198, examined the credentials of applicants from their respective localities, made inspections, and advised which candidates could qualify, according to the "Essentials." The resulting tentative list, together with a detailed report on the survey, was published in the Radiologic Number of The Journal, May 23, 1931.

Since various branches of medicine look to the radiologist for important aid in diagnosis and treatment, the careful certification of physicians qualified in radiology should be made to protect the patient and the profession. A powerful influence in the regulation of those qualified is, of course, membership in special radiologic societies. This membership immediately bars the lay practitioner and, to some extent, the physician who has not had adequate training and experience. Membership lists of the special societies include the names of many whose main interest lies in other specialties.

The Council has understood from the beginning and has advocated the principle that the practice of radiology is the practice of medicine. It has followed this principle in the interpretation of the essentials, in the preparation of its lists and in every opportunity that the Council has had to express itself on this point to the entire medical profession.

EMPHASIS PLACED ON SPECIALISTS

At first the emphasis was on laboratories and departments of radiology and roentgenology. Both the questionnaire and the "Essentials" laid stress on the laboratories, including equipment, personnel, records and publicity. The tentative list referred to laboratories or departments of radiology and roentgenology. But difficulties were found in the listing of laboratories as such, because laboratories change names; they also change directors and ownership, these changes often resulting in an entire change of methods and sometimes a reversal of ethical principles. It became apparent that the determining factor in radiologic service is the specialist who does the work or supervises it. Emphasis, therefore, was shifted from the laboratory to the directing radiologist, the main emphasis now being placed on his qualifications.

The "Essentials" have been recently revised to correspond with this new point of view, and the newly revised "Essentials," as adopted by the Council at its meeting in February, 1932, are printed in connection with this article.

HOW THE LIST IS COMPILED

The routine by which all applicants are admitted to the list is as follows:

1. A questionnaire is sent to all specialists in the field who, according to information, seem to have the necessary qualifications.
2. On receipt of the returned questionnaire, the record and credentials of the applicant are verified in the biographic file of the American Medical Association.
3. Each application is submitted to at least three or more advisers, who give their estimate and opinion of the qualifications of the applicant, based on personal knowledge or inspection, or both.
4. Membership in special societies is looked up, and the advice of the officers of those societies and the officers of county medical societies, and of councilors, is obtained.

In this way the principle is observed that specialists should be judged by specialists. Those who work and associate with specialists have the best opportunity of knowing them. Due attention is also given to the records in the biographic file of the American Medical Association and to the individual's own report on himself and his work.

The first survey covered mainly those radiologists who were conducting laboratories of their own and included, also, those that were connected with hospitals, but did not include others, such as those who teach and supervise radiologic work in medical schools and those working in research institutions and government departments. More recently, the work has been extended to all of these fields. Questionnaires have recently been sent out and applications received from thirty-two of these specialists who were not included in the first survey. There has not been time to give to all the later applications the consideration that is due them, which will explain the omission of some from the list contained in the accompanying pages.

Additions and revisions will be made from time to time; suggestions for changes will be received and consideration of new applications will go on continuously. Cooperation by the men in the specialty has been excellent and must continue in order that the work may be of optimum value.

PATHOLOGISTS AND CLINICAL PATHOLOGISTS

The list of clinical pathologists which accompanied the list of radiologists in the Radiologic Number for May 23, 1931, is not included in the present issue but is being revised for a later issue of The Journal. This will give the necessary time for a thorough revision of that list, including a classification of pathologists and clinical pathologists so as to form a more accurate and a more useful list. Also, the pathologists and clinical pathologists connected with medical colleges, research institutions and government departments will be included, as is being done in the case of the radiologists.

ESSENTIALS FOR ADMISSION TO LIST OF PHYSICIANS SPECIALIZING IN RADIOLOGY

Physicians Eligible

Consideration for admission to the list is open to all regular licensed physicians engaged in radiologic work in accordance with the essentials, whether connected with a hospital or conducting an independent laboratory.

1. Qualifications

(*a*) The candidate shall be a graduate of a medical school that is approved by the Council on Medical Education and Hospitals and shall be licensed to practice medicine in the state in which his department is located. He shall also have had special training, such as is approved by the Council, in radiology, roentgenology or radium therapy at an acceptable school—preceptorship, hospital or clinic, department of radiology, roentgenology or radium therapy—for a period of at least three years, or, in lieu of such training, shall have had a minimum of five years' experience in the exclusive practice of radiology, roentgenology or radium therapy. He must be a man of good standing in the medical profession, and particularly among those specializing in radiology. He shall either be on a full time basis or have definite hours of attendance at the department, such hours to be ample to insure the element of medical consultation in every examination or treatment.

(*b*) The department shall be under the direction of a physician radiologist, roentgenologist or radium therapist, as the circumstances may require. The director shall be responsible for all examinations and treatments. He shall be responsible for all professional assistants and for the efficient maintenance of the department.

Physicians employed by laboratories which are under lay control and direction will not be eligible for consideration for this listing.

(*c*) *Assistants.*—The director may have a corps of qualified medical and technical assistants responsible to him, and for whom he is responsible, to carry out accurately the various functions of the department.

2. Definitions

Radiology.—The branch of medicine which deals with the diagnostic and therapeutic application of radiant energy, including roentgen rays, radium, ultraviolet rays and other spectral radiation.

Department of Radiology.—A private laboratory or department of a hospital, clinic or other institution, organized and equipped for the diagnostic and therapeutic application of radiant energy, including roentgen rays, radium, ultraviolet rays and other spectral radiation.

Radiologist.—A qualified physician who also has obtained adequate special training and experience in general radiology.

Roentgenology.—The phase of radiology which deals with the diagnostic and therapeutic application of roentgen rays only.

Department of Roentgenology.—A private laboratory or department of a hospital, clinic or other institution organized and equipped for the diagnostic and therapeutic application of roentgen rays only. A department organized and equipped solely for the diagnostic or therapeutic application of roentgen rays shall be known as a department of diagnostic or therapeutic roentgenology, respectively.

Roentgenologist.—A qualified physician who has had adequate training and experience in the diagnostic and therapeutic application of roentgen rays.

Diagnostic Roentgenologist.—A roentgenologist who limits his practice to the diagnostic phase of roentgenology.

Therapeutic Roentgenologist.—A roentgenologist who limits his practice to the therapeutic phase of roentgenology.

Radium Specialist.—A physician who has had adequate training and experience in the therapeutic use of radium and who specializes in this work.

3. Scope

A department of radiology should be able to render all of the following services:

(*a*) Roentgenography, simple or stereoscopic, of any part of the body, with medical interpretation of the roentgenographic observations, and under satisfactory conditions for the protection of the patient and of the professional and technical personnel.

(*b*) Roentgenoscopy of any part of the body, in any position, with or without opaque mediums, with medical interpretation of the roentgenoscopic observations, and under satisfactory conditions for the protection of the patient and the professional and technical personnel.

(*c*) Roentgenotherapy of all benign and malignant diseases amenable to such treatment with roentgen rays generated at low, moderate or high voltage (long, medium or short wavelength), as the conditions may require, and under satisfactory conditions for the protection of the patient and of the professional and technical personnel.

(*d*) Radium therapy of all benign and malignant diseases amenable to such treatment with an adequate quantity of radium element or emanation, and under satisfactory conditions for the protection of the patient and of the professional and technical personnel.

Ultraviolet therapy, general or local, with satisfactory air-cooled and water-cooled quartz mercury lamps or carbon arc lamps, with suitable quartz and other applicators for irradiation of cavities, sinuses or the superficial lesions under pressure, and under satisfactory conditions for the protection of the patient and of the professional or technical personnel. This stipulation is not mandatory, but the Council recommends that every department of radiology be equipped for ultraviolet therapy or that the ultraviolet equipment of hospitals be placed in the department of radiology. Ultraviolet treatment by the department of physical therapy shall not be countenanced unless such department is under the control and supervision of a medical director who has specialized in radiology.

A department of roentgenology should be able to render the services specified under *a, b* and *c*.

A department of diagnostic roentgenology should be able to render the services specified under *a* and *b*.

A department of therapeutic roentgenology should be able to render the services specified under *c*.

A department of radium therapy should be able to render the services specified in *d*.

4. Housing

The housing should be adequate for the proper functioning of the department of radiology or roentgenology. Damp or ill ventilated quarters are unsuitable for such work.

5. Equipment

The equipment should be sufficient to carry out properly the technical procedures and activities of the department of radiology, roentgenology or radium therapy.

6. Protection

The arrangement of working rooms and conditions, and the construction of all apparatus shall be such as to provide adequate protection, both from electrical shock and from avoidable exposure to roentgen rays or radium, to patients, attendants and other persons in or near the department. The requirements in this respect are based on the recommendations adopted by the International Congress of Radiology, held at Stockholm, Sweden, in July, 1928, and approved by the American Roentgen Ray Society and the Radiological Society of North America.

7. Records

Full records of all examinations and treatments made by the department, suitably indexed, are essential. Roentgenograms made in the department should have inerasible identification marks which will preclude error as to patients concerned. Roentgenograms may be lent to referring physicians but should be returned to the laboratory for filing and future reference. Suitable storage facilities should be provided where roentgenograms and other records will be both safe and readily available for reference. They shall be kept as long as there is the possibility of their being needed for the benefit of the patients or their physicians.

As roentgenography constitutes only a kind of medical examination, on which the roentgenologist's opinion of the patient's condition is partly or wholly based, and as the opinion of the specialist is the essential factor, the Council holds that the introduction of roentgenograms as evidence in medicolegal cases should be discouraged as immaterial and as tending to adulterate the process of justice. There is no more reason for the introduction of roentgenograms than for requiring a pathologist to bring to court his microscope and his sections of tissues.

8. Reports

The reports of a department of radiology, roentgenology or radium therapy shall be made through the director on stationery or blanks having the name of the director printed thereon. Under no circumstances shall roentgenologic diagnoses, interpretations, opinions, statements of prognosis, or therapeutic suggestions be offered by the nonmedical personnel.

9. Library

The department of radiology, roentgenology or radium therapy should be provided with, or have convenient access to, a library including current scientific books and journals on all the various subjects required in its work.

10. Ethics, Fees and Publicity

Radiology is a special type of medical practice, and the physician practicing radiology is subject to the same rules of special training and conduct that govern his fellow specialists in the practice of medicine and surgery. The Principles of Medical Ethics of the American Medical Association shall apply in all cases. The fees charged for radiologic services shall be under the control of the director of the department. All systems of rebates, discounts, special group rates, etc., shall be considered unethical, except that, where the patient's economic status is the determining factor, the radiologist, like his fellow physician in medicine or surgery, may waive part or all of the fee.

The publicity of a department of radiology, roentgenology or radium therapy should be in professional good taste and limited to statements of fact as to name, address and telephone number; names and titles of the director and other active responsible personnel; field of work covered, office hours, directions for referring patients, and so forth. It should not contain misleading statements or claims of unusual superiority. It should not advocate medical fads nor lay undue stress on the importance of roentgenologic observations. On the letterheads or any other form of publicity, only the names of those rendering regular services to the department should appear as being connected with the department. Advertising matter should be directed only to physicians, either through bulletins or through recognized technical journals, and never to the nonprofessional public, as, for example, by announcements in popular journals and periodicals, circulars, pamphlets or telephone lists.

11. Admission to the Approved List

Only when the physician is the director or is affiliated with a department of radiology, roentgenology or radium therapy in which the personnel, space, equipment, management, finances and records are such as will insure honest, efficient and accurate work may he expect to be listed. Physicians desiring to be considered for the approved list should apply to the Council on Medical Education and Hospitals of the American Medical Association, 535 North Dearborn Street, Chicago.

PHYSICIANS SPECIALIZING IN RADIOLOGY—1,003

The list contains the names of only those who responded to the questionnaire, who have been found to comply with the "Essentials," and who were recommended by the advisers for their respective states. Those who are still under consideration, and others who may apply, will, when accepted, be added in subsequent issues of The Journal.

The type of service rendered is given opposite the name. "Radiology," under "Type of Service," always includes short wave therapy, also known as "deep therapy." The asterisk (*) on "roentgenology" indicates that short wave therapy is included.

Name	Address	Type of Service
ALABAMA		
Anniston		
Levi, Irwin P.	931 Noble St.	Roentgenology
Birmingham		
Barfield Carter, M.	2031, 1st Ave., N.	Roentgenology
Edmonson, John H.	1928, 1st Ave., N	Roentgenology
Kesmodel, Karl F.	Medical Arts Bldg.	Roentgenology
Meadows, James A.	1928, 1st Ave., N.	Roentgenology
Dothan		
Mills, John T.	200 E. Main St.	Roentgenology
Montgomery		
Boswell, F. P.	201 Montgomery St.	Radiology
ARIZONA		
Phoenix		
Goss, H. J.	125 W. Monroe St.	Roentgenology
Watkins, W. W.	12 N. Central Ave.	Radiology
ARKANSAS		
Fort Smith		
Brooksher, W. R.	602 Garrison Ave.	Radiology
Hot Springs		
Sims, Chas. H.	236 Central Ave.	Radiology
Little Rock		
Rhinehart, B. A.	701 Main St.	Roentgenology
Rhinehart, D. A.	701 Main St.	Roentgenology
Zell, A. M.	2000 Main St.	Radiology
Monticello		
Wilson, J. S.		Radiology
CALIFORNIA		
Alameda		
Lum, Wm. T.	1301 Park St.	Roentgenology *
Bakersfield		
Fox, L. H.	2025, 18th St.	Roentgenology
Berkeley		
Heald, E. Schulze	3000 Regent St.	Roentgenology
Van Nuys, R. G.	2190 Channing Way	Radiology
Fresno		
Broemser, Milton A.	2011 Tulare St.	Radiology
Milholland, W. G.	Bank of America Bldg.	Roentgenology
Ruff, Frank R.	Burnett Sanitarium	Radiology
Glendale		
Jones, L. L.	225 N. Central Ave.	Roentgenology *
Hollywood		
Sherman, B. H	6777 Hollywood Blvd.	Roentgenology
Stewart, Chas. W	1680 N. Vine St.	Roentgenology
Warren, J. W.	1322 N. Vermont Ave.	Radiology
Livermore		
Beaudet, E. A.	Veterans Administration Hospital	Diagnostic roent.
Long Beach		
Heyimun, H. H.	115 Pine Ave.	Diagnostic roent.
Mayfield, Claude	115 Pine Ave.	Diagnostic roent.
Los Angeles		
Bailey, Cornelius O	727 W. 7th St.	Radiology
Blaine, Edward S.	727 W. 7th St.	Roentgenology
Bonoff, Karl M.	1930 Wilshire Blvd.	Roentgenology
Carter, Ray A.	1100 Mission Rd.	Roentgenology
Costolow, Wm. E.	1407 S. Hope St.	Roentgen therapy Radium therapy
Davis, Kenneth S.	St. Vincent's Hospital	Roentgenology *
Goin, Lowell S.	1930 Wilshire Blvd.	Roentgenology
Karshner, Rolla G.	510 S. Lucas Ave.	Roentgenology
Kibby, Sydney V.	417 S. Hill St.	Roentgenology
Martin, A. T.	269 S. Mariposa St.	Radiology
McKee, Edward N.	2173 Colorado Blvd., Eagle Rock	Roentgenology
Pindell, Merl Lee	678 S. Ferris Ave.	Diagnostic roent.
Snure, Henry	1414 S. Hope St.	Radiology
Solland, Albert	1407 S. Hope St.	Roentgen therapy Radium therapy
Stafford, Owen R.	520 W. 7th St.	Roentgenology
Taylor, Raymond G.	1212 Shatto St.	Radiology
Witter, Calvin B.	511 S. Bonnie Brae St.	Roentgenology *
Mare Island		
Pinner, Wm. Ellis	U. S. Naval Hospital	Roentgenology
Oakland		
Bissell, F. S.	434, 30th St.	Roentgenology
Bowen, Carl D.	1624 Franklin St.	Roentgenology
Jelte, S. A.	230 Grand Ave.	Radiology
Petch, Phillip H.	428, 17th St.	Roentgenology
Peters, Chas. E.	400, 29th St.	Roentgenology *
Sargent, Wm. H.	1624 Franklin St.	Roentgenology *
Siefert, Alfred C.	Samuel Merritt Hospital	Radiology
Palo Alto		
Powers, Robert A.	Medico-Dental Bldg.	Roentgenology
Pasadena		
Parker, Carl H.	65 N. Madison Ave.	Roentgenology *
Pomona		
Swearingen, F. C.	586 N. Main St.	Radiology

Name	Address	Type of Service
Redlands		
Folkins, F. H.	47 E. Vine St.	Roentgenology
Riverside		
Thuresson, Paul F.	3770, 12th St.	Diagnostic roent.
Sacramento		
Cook, Orrin S.	1127, 11th St.	Roentgenology
Graham, Ralph S.	Sutter Hospital	Roentgenology *
Zimmerman, Harold	1027, 10th St.	Radiology
San Bernardino		
Owen, C. C.	398, 6th St.	Roentgenology *
San Diego		
Elliott, A. E.	1831, 4th St.	Radiology
Kinney, L. C.	1831, 4th St.	Radiology
Weiskotten, W. O.	233 A St.	Diagnostic roent.
San Francisco		
Bryan, Lloyd	450 Sutter St.	Roentgenology *
Crow, Lloyd B.	1400 Fell St.	Roentgenology *
Donoran, Monica	450 Sutter St.	Roentgenology Radium therapy
Fulmer, Chas. C.	St. Luke's Hospital	Roentgenology
Garland, Leo H.	450 Sutter St.	Roentgenology *
Hunsberger, H. S.	450 Sutter St.	Diagnostic roent.
Ingber, I. S.	490 Post St.	Radiology
Newell, Robert R.	2361 Clay St.	Radiology
O'Neill, John R.	2200 Hayes St.	Roentgenology
Rehfisch, John M.	450 Sutter St.	Roentgenology *
Rodenbaugh, F. H.	490 Post St.	Radiology
Ruggles, Howard E.	384 Post St.	Roentgenology
Stone, Robert S.	University of Calif. Hosp.	Roentgenology
Williams, Francis	870 Market St.	Radiology
San Jose		
Richards, Charles M.	241 E. Santa Clara St.	Roentgenology *
San Pedro		
Allen, Albert	410 W. 6th St.	Diagnostic roent.
Santa Barbara		
Geyman, M. J.	1520 Chapala St.	Radiology
Ullmann, H. J.	1520 Chapala St.	Radiology
Ware, James G.	1513 State St.	Roentgenology *
Santa Monica		
Hopkirk, C. C.	710 Wilshire Blvd.	Diagnostic roent.
Stockton		
Sheldon, F. B.	242 N. Sutter St.	Radiology
Woodland		
Lawson, John D.		Radiology

COLORADO

Name	Address	Type of Service
Colorado Springs		
Brown, L. G.	707 N. Cascade Ave	Radiology
Denver		
Allen, K. D.	227, 16th St.	Roentgenology *
Brandenburg, H. P.	227, 16th St.	Radiology
Childs, S. B.	227, 16th St.	Radiology
Conyers, Chester A.	209, 16th St.	Radiology
Crosby, L. G.	227, 16th St.	Radiology
Diemer, Frederick E.	1612 Tremont St.	Diagnostic roent.
Newcomer, Elizabeth	209, 16th St.	Roentgenology *
Newcomer, N. B.	1616 Tremont St.	Radiology
Schmidt, Ernst A.	4200 E. 9th Ave.	Radiology
Stephenson, F. B.	227, 16th St.	Roentgenology
Wasson, W. W.	227, 16th St.	Radiology
Withers, Sanford	1612 Tremont St.	Roentgenology Radium therapy
Longmont		
Matlack, J. A.		Diagnostic roent.
Sterling		
Daniel, J. H.		Roentgenology
Woodmen		
Forney, F. A.		Diagnostic roent.

CONNECTICUT

Name	Address	Type of Service
Bridgeport		
Groark, Owen J.	881 Lafayette St.	Diagnostic roent.
LaField, W. A.	144 Golden Hill St.	Radiology
Parmelee, B. M.	144 Golden Hill St.	Radiology
Hartford		
Heublein, Arthur C.	179 Allyn St.	Radiology
Hoffman, Charles C.	700 Main St.	Diagnostic roent.
Ogden, Ralph T.	179 Allyn St.	Radiology
Roberts, Douglas J.	179 Allyn St.	Radiology
Van Strander, W. H.	179 Church St.	Diagnostic roent.
Meriden		
Otis, Fessendon N.	165 W. Main St.	Roentgenology
Middletown		
Murphy, James	101 Broad St.	Diagnostic roent.
New Britain		
Grant, Arthur S.	55 W. Main St.	Roentgenology
New Haven		
Bergman, A. P.	27 Elm St.	Diagnostic roent.
Goldman, George	201 Park St.	Diagnostic roent.
Scott, Clifton R.	215 Whitney Ave.	Roentgenology
Wheatley, Louis F.	420 Temple St.	Radiology
Norwalk		
Perkins, Charles W.	520 West Ave.	Roentgenology *
Willimantic		
Kinney, Kenneth K.	29 North St.	Roentgenology

DELAWARE

Name	Address	Type of Service
Wilmington		
Allen, B. M.	909 Washington St.	Diagnostic roent.
Burns, Ira	601 Delaware Ave.	Diagnostic roent.
McElfatrick, G. C.	1024 W. 8th St.	Diagnostic roent.

DISTRICT OF COLUMBIA

Name	Address	Type of Service
Washington		
Caylor, C. C.	1029 Vermont Ave., N.W.	Diagnostic roent.
Christie, A. C.	1835 I St. N.W.	Radiology
Coe, Fred O.	1835 I St., N.W.	Radiology
Elward, Joseph F.	1800 I St., N.W.	Roentgenology
Groover, T. A.	1835 I St., N.W.	Radiology
Lattman, Isidore	1835 I St., N.W.	Radiology
McPeak, Edgar M.	1835 I St., N.W.	Radiology
Merritt, E. A.	1835 I St., N.W.	Radiology
Moore, A. B.	1835 I St., N.W.	Radiology
Moore, Claude	Geo. Washington Univ. Hosp.	Roentgenology
Otell, L. S.	1835 I St., N.W.	Radiology
Sappington, E. F.	1103, 16th St., N.W.	Roentgenology
Spalding, Otis B.	U. S. Naval Hospital	Roentgenology *

FLORIDA

Name	Address	Type of Service
Clearwater		
Brown, Harold O.		Diagnostic roent.
Fort Lauderdale		
Hendricks, E. M.	Sweet Bldg.	Radiology
Jacksonville		
Cunningham, L. W.	117 W. Duval St.	Roentgenology *
McEuen, H. B.	1721 Challen Ave.	Roentgenology *
Shaw, W. McL.	117 W. Duval St.	Roentgenology *
Lakeland		
Weed, Walter A.	Morrell Memorial Hospital.	Roentgenology Radium therapy
Miami		
Cleghorn, Charles D.	168 S.E. 1st Ave.	Roentgenology Radium therapy
Lucinian, Joseph H.	168 S.E. 1st Ave.	Roentgenology *
Raap, Gerard	168 S.E. 1st Ave.	Diagnostic roent. Radium therapy
Miami Beach		
Payton, Frazier J.		Roentgenology Radium therapy
Ocala		
Moore, J. N.		Diagnostic roent.
Orlando		
Pines, John A.	Orlando Clinic	Roentgenology *
St. Petersburg		
Feaster, O. O.	103, 5th St., S.	Roentgenology Radium therapy
Herring, John A.	350, 3d Ave. N.	Diagnostic roent.
Sanford		
Marshall, C. J.	212 E. 1st St.	Radiology
Tampa		
Allen, Bundy	706 Franklin St.	Roentgenology *
Dickinson, J. C.	706 Franklin St.	Roentgenology *
West Palm Beach		
Herpel, Fredk. K.	Good Samaritan Hospital	Diagnostic roent.

GEORGIA

Name	Address	Type of Service
Americus		
Pendergrass, R. C.		Roentgenology *
Atlanta		
Clark, James J.	478 Peachtree St., N. E.	Roentgenology
Hall, O. D.	Georgia Baptist Hospital	Radium therapy
Lake, Wm. F.	384 Peachtree St., N. E.	Roentgenology *
Landham, J. W.	139 Forrest Ave., N. E.	Roentgenology Radium therapy
Rayle, Albert A.	Steiner Cancer Clinic	Roentgenology
Stewart, Calvin B.	Steiner Cancer Clinic	Radium therapy
Augusta		
Holmes, L. P.	753 Broad St.	Roentgenology
Savannah		
Cole, Wm. A.	20 E. Taylor St.	Roentgenology
Corson, Eugene R.	10 W. Jones St.	Roentgenology *
Drane, Robert	Liberty and Drayton Sts.	Roentgenology Radium therapy
McGee, H. H.	14 E. Taylor St.	Roentgenology

IDAHO

Name	Address	Type of Service
Boise		
Genoway, Charles Y.	105 N. 8th St.	Roentgenology *
Lewiston		
Johnson, Paul W.		Roentgenology *

ILLINOIS

Name	Address	Type of Service
Batavia		
Mostrom, H. T.		Diagnostic roent. Radium therapy
Belvidere		
Alguire, Alden		Diagnostic roent.
Bloomington		
Cantrell, Thomas	310 E. Jefferson St.	Radiology
Grote, Henry W.	219 N. Main St.	Radiology
Chicago		
Arens, Robt. A.	2839 Ellis Ave.	Radiology
Bellin, David S.	411 Garfield Ave.	Radiology
Blackmarr, Frank H.	25 E. Washington St.	Roentgen therapy Radium therapy
Brams, Julius	180 N. Michigan Ave.	Roentgenology
Brown, Wm. L.	55 E. Washington St.	Radium therapy
Casellas, P. R.	1525 E. 53d St.	Roentgenology
Challenger, C. J.	3117 Logan Blvd.	Roentgenology
Cook, Carroll E.	30 N. Michigan Ave.	Radiology
Culpepper, Wm. L.	1305 E. 63d St.	Roentgenology
Cushway, B. C.	7752 S. Halsted St.	Radiology
Cutrera, Peter	501 N. Halsted St.	Diagnostic roent.
Damiani, Joseph	767 Milwaukee Ave.	Roentgenology
Davis, H. E.	2548 Lake View Ave.	Diagnostic roent.
Dick, Paul G.	55 E. Washington St.	Roentgenology

Name	Address	Type of Service
Ford, Charles	8017 Luella Ave.	Roentgenology
Gilmore, Wilbur H.	185 N. Wabash Ave.	Roentgenology
Grubbe, Emil H.	6 N. Michigan Ave.	Roentgen therapy
Hartung, Adolph	25 E. Washington St.	Radiology
Hodges, Paul C.	928 E. 59th St.	Radiology
Hubeny, M. J.	25 E. Washington St.	Roentgenology
Jenkinson, David L.	1931 Wilson Ave.	Roentgenology *
Jenkinson, E. L.	1439 S. Michigan Ave.	Radiology
Kraft, Ernest	950 E. 59th St.	Roentgenology *
Landau, George M.	660 Groveland Park	Roentgenology
Larkin, A. James	25 E. Washington St.	Radium therapy
Litschgi, Joseph J.	551 Grant Pl.	Roentgenology
Maier, Roe J.	7752 S. Halsted St.	Radiology
McClure, C. F.	25 E. Washington St.	Roentgenology
Olin, Harry	6058 Drexel Blvd.	Roentgenology
Orndoff, B. H.	2561 N. Clark St.	Roentgenology
Potter, Hollis E.	122 S. Michigan Ave.	Roentgenology
Rose, Cassie Belle	1753 W. Congress St	Radiology
Royer, Don J.	841 E. 63d St.	Roentgenology
Tichy, L. S.	3200 W. 22d St	Roentgenology
Trostler, I. S.	25 E. Washington St.	Radiology
Wanninger, W. J.	9116 Exchange Ave	Roentgenology
Warden, R. H.	1041 N. Francisco Ave.	Radiology
Warfield, C. H.	Cook County Hospital	Roentgenology
Willy, R. G.	2749 W. Foster Ave.	Roentgenology
Danville		
Allison, Otis W.	9 W. Main St.	Radium therapy
Archibald, James S	602 Green St	Roentgenology
Dunham, L. H.	139 N. Vermilion St.	Radiology
Deerfield		
Davis, Charles J.		Roentgenology
East St. Louis		
Echternacht, A. C.	129 N. 8th St.	Radiology
Evanston		
Alexander, William G.	636 Church St.	Radiology
Conley, Bernard M	St. Francis Hospital	Roentgenology
Perry, Gentz	636 Church St	Radiology
Galesburg		
Gunning, R. E. Lee	64 S. Prairie St	Radiology
Highland Park		
Jacks, R. R.	16 N. Sheridan Rd	Diagnostic roent.
Joliet		
Houston, Alfred M	201 N. Chicago St.	Roentgenology
Mattoon		
Morgan, Chas. E	213 S. 17th St.	Roentgenology
Mount Carmel		
Elkins, Harold A		Roentgenology
Mount Vernon		
Smith, Elmer M	1001½ Broadway	Roentgenology
Oak Park		
Ronayne, Frank J	West Suburban Hospital	Radiology
Olney		
Weber, James A.		Diagnostic roent. Radium therapy
Ottawa		
Pettit, Roswell T.	Illinois Valley Hospital	Diagnostic roent.
Peoria		
Goodwin, P. B.	530 N. Glen Oak Ave	Radiology
Magee, H. B.	408 Main St.	Radiology
Quincy		
Beirne, H. P.	618 Hampshire St	Radiology
Swanberg, Harold	508 Maine St.	Radiology
Rockford		
Ackemann, H. W	321 W. State St.	Radiology
Springfield		
O'Hara, F. S.	310½ S. 5th St.	Radiology

INDIANA

Name	Address	Type of Service
Crawfordsville		
Sigmond, H. W.	227 E. Main St.	Radiology
Evansville		
Cleveland, W. R.	22 N. W. 4th St.	Radiology
Meyer, Keith T.	Protestant Deaconess Hosp.	Diagnostic roent.
Smith, Wm. L.	412 S.E. 4th St.	Radiology
Fort Wayne		
Rodriguez, Juan	2902 Fairfield Ave.	Radiology
Steele, M. F.	116 E. Berry St.	Diagnostic roent.
Truelove, A. O.	347 W. Berry St.	Radiology
Van Buskirk, E. M.	347 W. Berry St.	Radiology
Gary		
Dietrich, Paul H.	St. Mary's Mercy Hospital.	Roentgenology
Indianapolis		
Beeler, R. C.	23 E. Ohio St.	Radiology
Collins, J. N.	23 E. Ohio St	Radiology
Lochry, R. L.	St. Vincent's Hospital	Roentgenology
Smith, L. A.	23 E. Ohio St.	Radiology
Stayton, Chester A.	23 E. Ohio St.	Roentgenology *
Kokomo		
Ferry, Paul W.	224 N. Main St.	Diagnostic roent.
LaFayette		
McClelland, D. C.	808 N. 8th St.	Roentgenology *
Michigan City		
Martin, F. V.	601 Pine St.	Radiology
Muncie		
Moore, P. D.	Jackson and High Sts.	Radiology
New Castle		
Iterman, Geo. E.	1319 Church St.	Roentgenology
Plymouth		
Knott, Harry		Roentgenology
Shelbyville		
Inlow, Herbert H.	2 W. Washington St.	Diagnostic roent.
Terre Haute		
Pierce, H. J.	627 Cherry St.	Radiology
Union City		
Reid, Robert W.		Roentgenology
Valparaiso		
DeWitt, C. H.		Diagnostic roent.
Vincennes		
Moore, Robert G.	21 N. 3d St.	Roentgenology

IOWA

Name	Address	Type of Service
Anamosa		
Rawson, E. G.		Diagnostic roent.
Atlantic		
Greenleaf, W. S.		Roentgenology
Belle Plaine		
Newland, Don H.		Diagnostic roent.
Cedar Rapids		
Erskine, Arthur W.	120, 3d Ave. S.E.	Radiology
Des Moines		
Burcham, Thos. A.	410, 6th Ave.	Radiology
Dubuque		
Johnston, Wayne A.	1200 Main St.	Radiology
Eagle Grove		
Christensen, John R.		Roentgenology
Independence		
Shellito, J. C.		Roentgenology
Iowa City		
Gibbon, W. H.	University Hospitals	Radiology
Kerr, H. Dabney	University Hospitals	Radiology
LeMars		
Larsen, W. W.		Roentgenology *
Marshalltown		
Talley, Louis F.	Evangelical Deaconess Home and Hospital	Roentgenology
New Hampton		
Chandler, Orville B		Diagnostic roent.
Ottumwa		
Herrick, John F.	103 S. Market St.	Radiology
Spilman, H. A.	103 S. Market St.	Diagnostic roent.

KANSAS

Name	Address	Type of Service
Eldorado		
Dinsmore, W. S.	321 W. Central St.	Diagnostic roent.
Ellsworth		
Hissem, H. Z.		Diagnostic roent.
Eureka		
Moore, R. W		Roentgenology
Fort Scott		
Pritchard, J. R.	209 S. Main St.	Radiology
Kansas City		
Allen, Lewis G	601 Minnesota Ave.	Radiology
Lawrence		
Jones, H. T.	107 E. 8th St.	Diagnostic roent.
Salina		
Brittain, O. R	105 S. 7th St.	Roentgenology
Topeka		
Finney, Guy A	901 Kansas Ave.	Roentgenology
Floersch, M. A	700 Kansas Ave.	Roentgenology
Owen, Arthur K	901 Kansas Ave.	Roentgenology
Wichita		
Frost, E. J.	227 E. Douglas Ave.	Radiology
Swope, Opie W.	105 N. Main St.	Radiology

KENTUCKY

Name	Address	Type of Service
Ashland		
Cooper, John Ralph	1510 Winchester Ave.	Roentgenology *
Lexington		
Harding, Donnan B.	190 N. Upper St	Radiology
Thompson, J. C	207 N. Upper St.	Roentgenology
Louisville		
Bell, J. C.	332 W. Broadway	Radiology
Enfield, Chas. D	332 W. Broadway	Radiology
Fugate, I. T.	332 W. Broadway	Radiology
Herrmann, Henry C.	608 S. 4th St.	Radiology
Johnson, S. E	101 W. Chestnut St	Roentgenology
Keith, D. Y.	412 W. Chestnut St	Radiology
Keith, J. P.	412 W. Chestnut St	Radiology
Owensboro		
Gillim, P. D.	415 St. Ann St.	Roentgenology
Winchester		
Browne, I. H.		Diagnostic roent.

LOUISIANA

Name	Address	Type of Service
Alexandria		
Barker, H. O.	327, 3d St.	Roentgenology
Baton Rouge		
Williams, Lester J.	221, 3d St.	Radiology
Houma		
St. Martin, T. I.		Roentgenology
Mansfield		
Curtis, H. P. D.		Roentgenology
Monroe		
Moore, Daniel M.	128 De Siard St.	Roentgenology
New Orleans		
Bowie, E. R.	3503 Prytania St.	Radiology
Fortier, L. A.	2000 Tulane Ave.	Radiology
Gately, T. T.	2000 Tulane Ave.	Radiology
Granger, Amedee	921 Canal St.	Roentgenology
Henderson, W. F.	3500 Prytania St.	Radiology
Menville, L. J.	921 Canal St.	Radiology
Samuel, E. C.	3503 Prytania St.	Radiology
Shreveport		
Barrow, S. C.	624 Travis St.	Radiology
Edwards, H. G. F.	624 Travis St.	Roentgenology
Harwell, W. R.	624 Travis St.	Radiology
Rutledge, C. P.	1030 Highland Ave.	Radiology
Thomas, A. Jerome	624 Travis St.	Roentgenology

MAINE

Name	Address	Type of Service
Auburn		
Cunningham, C. H.	66 Goff St.	Diagnostic roent.
Bangor		
Ames, Forrest B.	489 State St.	Roentgenology
Hunt, Barbara	224 State St.	Radiology
Portland		
Cummings, Edson S.	12 Pine St.	Diagnostic roent.
Lamb, Frank W.	131 State St.	Diagnostic roent.
Thaxter, Langdon T.	2 Arsenal St.	Roentgenology
Waterville		
Goodrich, John P.	214 Main St.	Diagnostic roent.

MARYLAND

Name	Address	Type of Service
Baltimore		
Ashbury, Howard E.	101 Read St.	Roentgenology *
Baetjer, Fredk. H.	4 E. Madison St.	Roentgenology
Burnam, Curtis F.	1418 Eutaw Pl.	Radiology
Evans, John	101 Read St.	Roentgenology
Feldman, Maurice	2125 Eutaw Pl.	Diagnostic roent.
Kahn, Max	904 N. Charles St.	Roentgenology *
Ostro, Marcus	1810 Eutaw Pl.	Roentgenology
Pierson, J. W.	1107 St. Paul St.	Roentgenology *
Sax, Benjamin J.	101 Read St.	Diagnostic roent.
Walton, Henry J.	104 W. Madison St.	Roentgenology
Waters, Charles A.	1100 N. Charles St.	Roentgenology
Wright, Harold E.	101 Read St.	Diagnostic roent.
Crisfield		
Collins, C. E.		Roentgenology
Cumberland		
Cowherd, F. G.	122 S. Centre St.	Roentgenology
Hagerstown		
Hoffmeier, F. N.	Washington County Hosp.	Roentgenology

MASSACHUSETTS

Name	Address	Type of Service
Boston		
Blackett, Chas. W.	35 Bay State Road	Roentgenology
Butler, P. F.	35 Bay State Road	Radiology
Coffin, W. K.	416 Marlboro St.	Roentgenology
Ellsworth, S. W.	520 Beacon St.	Roentgenology
George, Arial W.	43 Bay State Rd.	Roentgenology
Healy, Thomas R.	370 Marlboro St.	Roentgenology *
Holmes, Geo. W.	265 Charles St.	Radiology
Leonard, Ralph D.	43 Bay State Rd.	Roentgenology
Liebman, Charles	311 Commonwealth Ave.	Roentgenology
MacMillan, A. S.	483 Beacon St.	Roentgenology
Martin, William C.	Massachusetts General Hosp.	Roentgenology
McCarthy, H. L.	479 Beacon St.	Roentgenology
O'Brien, Fredk. W.	465 Beacon St.	Radiology
Osgood, Herman A.	144 Commonwealth Ave.	Roentgenology *
Ott, George J.	344 Commonwealth Ave.	Roentgenology
Perkins, Roy S.	520 Commonwealth Ave.	Roentgenology
Ritvo, Max	485 Commonwealth Ave.	Radiology
Robins, Samuel A.	636 Beacon St.	Roentgenology
Sosman, M. C.	Peter Bent Brigham Hosp.	Roentgenology *
Vance, R. G.	264 Beacon St.	Roentgenology
Vogt, E. C.	300 Longwood Ave.	Roentgenology
Watts, Henry F.	6 Monadnock St., Dor.	Diagnostic roent.
Wheatley, Frank E.	520 Beacon St.	Roentgenology
Whelan, Charles	395 Commonwealth Ave.	Radiology
Brockton		
Packard, Loring B.	305 Prospect St.	Roentgenology
Chelsea		
Hutchinson, R. W.	U. S. Naval Hospital	Roentgenology
Dalton		
Sullivan, P. J.		Roentgenology
Fall River		
Lindsey, John H.	151 Rock St.	Roentgenology
Tennis, M. N.	538 Prospect St.	Radiology
Fitchburg		
Jennings, Curtis H.	82 Mechanic St.	Roentgenology
Haverhill		
McFee, William D.	295 Mill St.	Roentgenology
Popoff, Constantine	26 Summer St.	Roentgenology *
Sproull, John	50 Merrimack St.	Radiology
Holyoke		
Harrington, Elmer J.	179 Chestnut St.	Roentgenology *
Lawrence		
Burgess, Charles J.	37 Whitman St.	Radiology
Lowell		
Mehan, Joseph A.	4 Park St.	Roentgenology
Stewart, Ralph C.	226 Central St.	Roentgenology
Malden		
Warren, Alva H.	6 Pleasant St.	Roentgenology
New Bedford		
Bonnar, James M.	90 Hillman St.	Roentgenology
North Adams		
Bunce, James W.	85 Main St.	Roentgenology
Crawford, J. W.	191 E. Main St.	Radiology
Northampton		
Janes, Benjamin F.	211 Elm St.	Roentgenology
Somerville		
Blake, Allen H.	81 College Ave., W. Som.	Roentgenology
Springfield		
Davis, Ernest L.	20 Maple St.	Roentgenology
Horrigan, A. J.	20 Maple St.	Roentgenology
Jackson, Howard L.	146 Chestnut St.	Roentgenology
Powers, Richard T.	25 Maple St.	Diagnostic roent.
Van Allen, Harvey W.	19 Maple St.	Radiology
Webster		
Bragg, Leslie R.	260 Main St.	Diagnostic roent.
Worcester		
Cook, Philip H.	27 Elm St.	Roentgenology Radium therapy
Langill, Morton H.	36 Pleasant St.	Roentgenology

MICHIGAN

Name	Address	Type of Service
Adrian		
Chase, A. W.	130 Toledo St.	Diagnostic roent.
Ann Arbor		
Donaldson, Sam W.	St. Joseph's Mercy Hospital	Roentgenology
Hodges, Fred J.	University of Michigan	Roentgenology
Peirce, Carleton B.	University Hospital	Radiology
Battle Creek		
Gorsline, C. S.	Old Merchants Tower	Roentgenology
Kolvoord, Theodore	65 W. Michigan St.	Roentgenology
Upson, W. O.	Leila Y. Post Montgomery Hospital	Roentgenology
Bay City		
Moffatt, Francis J.	Mercy Hospital	Roentgenology
Detroit		
Berris, J. M.	10 Peterboro St.	Diagnostic roent.
Birkelo, Carl C.	28 W. Adams Ave.	Roentgenology
Bloom, Arthur R	5057 Woodward Ave.	Roentgenology
Chene, George C.	1551 Woodward Ave.	Roentgenology
Dempster, Jas. H.	1551 Woodward Ave.	Diagnostic roent.
Doub, Howard P.	Henry Ford Hospital	Radiology
Evans, Wm. A.	10 Peterboro St.	Radiology
Hasley, Clyde K.	1551 Woodward Ave.	Radiology
Jarre, Hans A.	1551 Woodward Ave	Radiology
Kenning, J. C.	28 W. Adams Ave.	Roentgenology
Lim, W. K.	2201 E. Jefferson Ave	Radiology
Loucks, R. E.	337 W. Grand Blvd	Radiology
Minor, Edward G.	3001 W. Grand Blvd.	Roentgenology
Reynolds, Lawrence	10 Peterboro St.	Radiology
Sanderson, S. E.	5057 Woodward Ave.	Radiology
Shore, O. J.	3001 W. Grand Blvd	Roentgenology
Stevens, Rollin H	1551 Woodward Ave.	Radiology
Ulbrich, Henry L	1122 E. Grand Blvd	Roentgenology *
Weaver, Clarence E	113 Martin Pl.	Roentgenology
Flint		
MacDuff, Robert B.	Hurley Hospital	Roentgenology *
Grand Rapids		
Menees, Thomas O	Blodgett Memorial Hospital	Radiology
Moore, Vernor M.	110 E. Fulton St.	Radiology
Muller, John H.	26 Sheldon Ave.	Radiology
Williams, Alden H	*26 Sheldon Ave.*	*Radiology*
Jackson		
Cooley, R. M.	Mercy Hospital	Roentgenology
Kugler, J. C.	1905 Grovedale Ave	Roentgenology
Porter, H. W.	1020 E. Michigan Ave	Radiology
Kalamazoo		
Crane, A. W.	420 S. Rose St.	Roentgenology *
Jackson, John B.	420 S. Rose St.	Roentgenology *
Lansing		
Davenport, Carroll S.	St. Lawrence Hospital	Roentgenology *
Monroe		
Moll, T. M.	120 Maple Blvd.	Diagnostic roent.
Pontiac		
Church, J. E.	35 W. Huron St.	Roentgenology
Pool, H. H.	35 W. Huron St.	Roentgenology
Saginaw		
Anderson, Wm. K.	316 S. Porter St.	Diagnostic roent.
St. Johns		
Ho, T. Y.		Diagnostic roent.
Traverse City		
Minor, E. B.	208½ E. Front St.	Diagnostic roent.
Ypsilanti		
Pillsbury, Chas. B.	23B N. Washington St.	Diagnostic roent.

MINNESOTA

Name	Address	Type of Service
Duluth		
Clement, Gage	901 E. 1st St.	Radiology
Mankato		
Wentworth, A. J.	Mankato Clinic	Radiology
Minneapolis		
Allison, R. G.	74 S. 9th St.	Roentgenology *
Fleming A. S.	900 Nicollet Ave.	Radium therapy
Harrington, Chas. D.	78 S. 9th St.	Radiology
Nordin, G. T.	74 S. 9th St.	Roentgenology *
Rigler, Leo G.	University Hospital	Diagnostic roent.
Sundt, Mathias	2323, 6th St. S.	Roentgenology
Ude, Walter H.	74 S. 9th St.	Roentgenology *
Rochester		
Bowing, Harry H.	102, 2d Ave.	Roentgenology Radium therapy
Camp, John D.	Mayo Clinic	Diagnostic roent.
Desjardins, A. U.	Mayo Clinic	Roentgen therapy Radium therapy
Ford, Frances A.	Mayo Clinic	Radium therapy
Fricke, Robert E.	Mayo Clinic	Radium therapy
Kirklin, B. R.	Mayo Clinic	Diagnostic roent.
Leddy, Eugene T.	Mayo Clinic	Radium therapy
Sutherland, Charles G.	Mayo Clinic	Diagnostic roent.
Weber, Harry M.	Mayo Clinic	Diagnostic roent.
St. Cloud		
Kern, M. J.	St. Mary's Bldg.	Roentgenology *
St. Paul		
Aurelius, J. R.	350 St. Peter St.	Roentgenology *
Schons, Edward	350 St. Peter St.	Radiology

MISSISSIPPI

Name	Address	Type of Service
Gulfport		
Sims, Geo. P.	1005, 32d Ave.	Diagnostic roent.
Laurel		
McCormick, H. G.	531, 7th St.	Roentgenology
McComb		
Ratcliff, M. D.	Maryland and 4th Sts.	Diagnostic roent.
Natchez		
Beekman, Marcus	307 Franklin St.	Diagnostic roent.

MISSOURI

Name	Address	Type of Service
Holden		
Thompson, Wm. G.		Radiology
Joplin		
McCaughey, H. D.	607 Main St.	Radiology
Kansas City		
Dann, David S.	301 E. 12th St.	Roentgenology
DeWeese, E. R.	901 Grand Ave.	Roentgenology
Donaldson, C. O.	1103 Grand Ave.	Radiology
Lockwood, Ira H.	304 E. 12th St.	Radiology
McCandless, O. H.	308 E. 12th St.	Roentgenology
McDermott, J. L.	1103 Grand Ave.	Radiology
Skinner, Edward H.	1103 Grand Ave.	Radiology
Virden, C. E.	1103 Grand Ave.	Radiology
St. Joseph		
McGlothlan, A. B.	824 Edmond St.	Roentgenology *
Ravold, Henry J.	401 N. 6th St.	Roentgenology
St. Louis		
Ernst, Edwin C.	3720 Washington Ave.	Radiology
McCutchen, L. G.	508 N. Grand Blvd.	Roentgenology *
Moore, Sherwood	Barnes Hospital	Radiology
Mueller, Wilbur K.	607 N. Grand Blvd.	Roentgenology
Peden, Joseph C.	631 N. Grand Blvd	Roentgenology
Sante, L. R.	631 N. Grand Blvd.	Radiology
Spinzig, Edgar W.	508 N. Grand Blvd.	Roentgenology
Titterington, P. F.	508 N. Grand Blvd	Roentgenology
Zink, Oscar C.	St. Luke's Hospital	Roentgenology
Springfield		
Cole, Paul F.	200 Pershing Ave.	Radiology
Webster Groves		
Kerrigan, Joseph A.	421 S. Elm St.	Diagnostic roent.

MONTANA

Name	Address	Type of Service
Billings		
Bridenbaugh, J. H.	208 N. Broadway	Radiology
Watkins, C. F.	115 N. 28th St.	Radiology
Great Falls		
Walker, Dora	503, 1st Ave. N.	Roentgenology

NEBRASKA

Name	Address	Type of Service
Beatrice		
Penner, H. G.	113 S. 5th St.	Roentgenology *
Rush, Weaver A.	112½ S. 6th St.	Radiology
Grand Island		
Woodruff, R. C.	306½ N. Locust St.	Roentgenology
Hastings		
Rork, Leo W.	119 N. Hastings Ave.	Roentgenology *
Lincoln		
Kail, Carl	1307 N St.	Roentgenology *
Rowe, Edward W.	128 N. 13th St.	Radiology
Smith, Roscoe L.	1307 N St.	Radiology
Omaha		
Fouts, Roy W.	107 S. 17th St.	Radiology
Hardy, Clyde C.	101 S. 17th St.	Roentgenology
Hunt, Howard B.	Nebraska Methodist Episcopal Hospital	Roentgenology
Kelly, J. F.	107 S. 17th St.	Radiology
Overgaard, A. P.	107 S. 17th St.	Roentgenology
Ross, W. L.	407 S. 16th St.	Roentgenology
Tyler, Albert F.	103 S. 17th St.	Radiology
Scottsbluff		
Plehn, Frank W.		Roentgenology

NEVADA

Name	Address	Type of Service
Reno		
Piersall, C. E.	120 N. Virginia St.	Radiology

NEW HAMPSHIRE

Name	Address	Type of Service
Concord		
Eveleth, Fred S.	12 Court St.	Roentgenology
Dover		
Chesley, Harry O.	507 Central Ave.	Roentgenology
Hanover		
Sycamore, Leslie K.	Mary Hitchcock Memorial Hospital	Radiology
Manchester		
Merrill, A. S.	914 Elm St.	Roentgenology
Nashua		
Davis, S. G.	168 Main St.	Roentgenology
Rock, T. F.	77 Main St.	Diagnostic roent.

NEW JERSEY

Name	Address	Type of Service
Asbury Park		
Herrman, William G.	501 Grand Ave.	Radiology
Atlantic City		
Bradley, Robert A.	1616 Pacific Ave.	Radiology
Kaighn, Charles B.	905 Pacific Ave.	Roentgenology
Camden		
Roberts, Joseph E.	403 Cooper St.	Roentgenology
East Orange		
Marquis, W. James	Homeopathic Hospital of Essex County	Roentgenology
Reitter, George S.	141 Harrison St.	Diagnostic roent.
Elizabeth		
Vogel, Herbert A.	1060 E. Jersey St.	Diagnostic roent.
Ward, Leo J.	137 W. Jersey St.	Radiology
Englewood		
Edwards, James B.	Englewood Hospital	Roentgenology
Flemington		
Tompkins, G. B.		Diagnostic roent.
Hoboken		
Broeser, Henry V.	105 Newark St.	Roentgenology
Jersey City		
Maver, William W.	532 Bergen Ave.	Roentgenology
Perlberg, Harry J.	921 Bergen Ave.	Roentgenology
Montclair		
Schimmelpfennig, R. D.	65 N. Fullerton Ave.	Roentgenology
Stevens, J. Thompson	55 Park St.	Radiology
Newark		
Baker, Charles F.	198 Clinton Ave.	Roentgenology *
Gelber, Louis J.	41 Lincoln Ave.	Roentgenology
Hood, Philip G.	19 Lincoln Park	Diagnostic roent.
May, Ernest A.	965 Broad St.	Radiology
Reissman, Erwin	31 Lincoln Park	Diagnostic roent.
Passaic		
Terhune, Percy H.	171 Paulison Ave.	Roentgenology
Paterson		
Golding, Harry N.	180 Carroll St.	Roentgenology
Roemer, Jacob	213 Broadway	Radiology
Rochelle Park		
Pallen, C. de S.		Radium therapy
Succasunna		
Plume, C. A.		Diagnostic roent.
Summit		
Tidaback, John D.	382 Springfield Ave.	Roentgenology
Trenton		
Davison, R. Winthrop	200 E. State St.	Radiology

NEW MEXICO

Name	Address	Type of Service
Albuquerque		
Warden, M. R.	St. Joseph's Hospital	Diagnostic roent.

NEW YORK

Name	Address	Type of Service
Albany		
Howard, W. P.	46 Willett St.	Roentgenology
Prentice, D. D.	59 Clinton Ave.	Radiology
Amsterdam		
Wilson, David	156 Guy Park Ave.	Roentgenology
Auburn		
Austin, Sedgwick E.	51 E. Genesee St.	Diagnostic roent.
Bull, Harry S.	10 South St.	Roentgenology
Binghamton		
Kann, Ulysses S.	69 Walnut St.	Radiology
Brooklyn		
Bayles, William H.	1901 Bedford Ave.	Diagnostic roent.
Bell, A. L. Loomis	340 Henry St.	Radiology
Cramp, George W.	Methodist Episcopal Hosp.	Diagnostic roent.
Currin, Francis W.	1136 Dean St	Radiology
Dannenberg, Max	1161 Eastern Parkway	Roentgenology
Eastmond, Charles	483 Washington Ave.	Roentgenology *
Ehrenpreis, B.	576 Eastern Parkway	Roentgenology
Elliott, F. E.	122, 76th St.	Diagnostic roent.
Friedmann, Asa B.	41 Eastern Parkway	Radiology
Gold, Louis	835 Willoughby Ave.	Diagnostic roent.
Goldfarb, L.	608 Ocean Ave.	Diagnostic roent.
Howes, William E.	152 Clinton St.	Roentgenology
Ingraham, Ruth	121 DeKalb Ave.	Diagnostic roent.
Kaufman, Julius	201 Eastern Parkway	Roentgenology
Levine, Isaac	1219, 49th St.	Diagnostic roent.
Liberson, F.	612 Eastern Parkway	Diagnostic roent.
Masterson, John J.	401, 76th St.	Roentgenology
Rendich, Richard A.	116 Remsen St.	Roentgenology
Schenck, Samuel G.	1538 President St.	Diagnostic roent.
Schiff, Charles H.	1000 Park Pl.	Diagnostic roent.
Strahl, Milton I.	2 New York Ave.	Diagnostic roent.
Taormina, Louis J.	1093 Gates Ave.	Roentgenology
Teperson, H. I.	1488 Eastern Parkway	Radiology
Wasch, Milton G.	871 Park Pl.	Radiology
Buffalo		
Barnes, John M.	Millard Fillmore Hospital	Roentgenology
Bayliss, J. W.	472 Delaware Ave.	Diagnostic roent.
DeGraff, Ralph M.	131 Linwood Ave.	Diagnostic roent.
Gian-Franceschi, J. S.	610 Niagara St.	Diagnostic roent.
Helminiak, M. J.	929 Fillmore Ave.	Diagnostic roent.
Koenig, Edward C.	100 High St.	Diagnostic roent.
Lape, C. Pearley	183 Oxford Ave.	Diagnostic roent.
Levy, Sidney H.	33 Allen St.	Diagnostic roent.
Levyn, Lester	40 North St.	Roentgenology
Moses, Chester D.	563 Riley St.	Diagnostic roent.
Orr, Clifford R.	1093 Ellicott St.	Roentgenology *
Schreiner, B. F.	113 High St	Radiology
Smith, B. B.	333 Linwood Ave.	Diagnostic roent.
Thompson, A. W.	135 Linwood Ave.	Diagnostic roent.
Cooperstown		
Cruttenden, Harry L.		Radiology
Cortland		
Sornberger, Frank F.	16 Church St.	Roentgenology
Elmira		
Bennett, John A.	222 W. Church St.	Roentgenology
Far Rockaway		
Rivkin, Hyman	918 Cornaga Ave.	Diagnostic roent.
Glens Falls		
Birdsall, Edgar	140 Glen St.	Roentgenology
Gloversville		
Denham, H. C.	12 Prospect Ave.	Roentgenology
Hempstead		
Robin, Nathaniel H.	131 Fulton Ave.	Roentgenology
Williams, P. A.	131 Fulton Ave.	Roentgenology *
Hornell		
Mitchell, George W.	208 Main St.	Roentgenology
Hudson		
Harris, Rosslyn P.	427 Warren St.	Diagnostic roent.

Name	Address	Type of Service
Lackawanna		
Cotter, Stephen V....	1457 Abbott Rd............	Roentgenology
Mechanicsville		
Green, Geo. A.......	....	Diagnostic roent.
Mount Kisco		
Vaughan, F. E.......	....	Diagnostic roent.
Newburgh		
Miller, Raymond A...	212 Grand St............	Diagnostic roent.
Reed, Charles B......	205 Liberty St............	Roentgenology
New Rochelle		
Duckworth Willard D..	421 Huguenot St..........	Roentgenology
New York City		
Arons, Isidore.......	30 E. 49th St............	Roentgen therapy Radium therapy
Bendick, Arthur J....	100 E. 91th St............	Radiology
Besser, Herman......	66 E. 56th St............	Roentgenology
Carty, John R........	27th St. and 1st Ave.....	Roentgenology
Cole, Lewis Gregory..	36 E. 61st St............	Roentgenology *
Dieffenbach, W. H...	50 Central Park West.....	Radiology
Dixon, Geo. S........	218, 2d Ave...............	Diagnostic roent.
Ferguson, A. B.......	420 E. 59th St............	Roentgenology
Fineman, S..........	40 E. 49th St............	Diagnostic roent.
Freid, Jacob R.......	1049 Park Ave............	Radiology
Friedman, Lewis J....	315 E. 18th St............	Roentgenology
Glassman, I..........	138 E. 36th St............	Diagnostic roent.
Golden, Ross........	622 W. 168th St..........	Roentgenology
Gottlieb, Charles.....	210 W. 79th St............	Roentgenology
Groeschel, L. B......	40 W. 72d St.............	Radiology
Hirsch, Henry.......	2075 Grand Concourse.....	Radiology
Hirsch, I. Seth.......	136 E. 64th St............	Radiology
Howard, J. Campbell.	40 E. 61st St.............	Roentgenology *
Imboden, Harry M....	30 W. 59th St............	Radiology
Jaches, Leopold......	100 E. 94th St............	Radiology
Kaplan, Ira I........	55 E. 86th St............	Roentgen therapy Radium therapy
Kaplan, Morris......	130 Henry St............	Diagnostic roent.
Katz, Harry.........	141 Broome St...........	Diagnostic roent.
Kurz, Bernard......	1235 Grand Concourse.....	Diagnostic roent
Landsman, I. J.......	391 E. 149th St..........	Diagnostic roent.
Lapman, Charles.....	2754 Grand Concourse.....	Diagnostic roent.
Law, Frederick M....	140 E. 54th St............	Diagnostic roent.
Lefrak, Louis........	251 E. Broadway..........	Diagnostic roent.
Lenz, Maurice.......	1049 Park Ave............	Roentgen therapy Radium therapy
LeWald, L. T........	140 E. 54th St............	Roentgenology
Lewis, Raymond W...	30 E. 40th St.............	Diagnostic roent.
Meyer, William Henry	1 University Pl...........	Roentgenology *
Philips, Herman B....	9 W. 68th St.............	Radiology
Pomeranz, M. M......	911 Park Ave.............	Radiology
Powell, C. B.........	2368, 7th Ave............	Diagnostic roent.
Quimby, Adoniram J..	5 E. 57th St..............	Roentgenology
Remer, John.........	200 W. 59th St...........	Roentgen therapy
Robinson, G. Allen...	2 E. 77th St..............	Radium therapy
Robinson, William T.	322 W. 72d St...........	Roentgenology
Ryan, E. J...........	St. Luke's Hospital.......	Roentgenology
Scholz, Thomas......	38 E. 85th St............	Diagnostic roent.
Schwartz, C. W......	33 E. 68th St............	Roentgenology
Schwartz, Irving.....	1150, 5th Ave............	Diagnostic roent.
Spillman, Ramsay....	115 E. 61st St............	Diagnostic roent.
Steiner, Joseph M....	170 East End Ave.........	Roentgenology *
Stewart, Wm. H......	222 W. 79th St...........	Roentgenology
Taylor, Henry K......	333 West End Ave.........	Diagnostic roent.
Unger, Arthur S......	135 E. 74th St............	Roentgenology
Valenti-Mestre, A. F.	129 Broad St.............	Roentgenology
Weinberg, Tobias B...	310 E. 15th St..........	Roentgenology
Weitzner, Samuel F...	1018 E. 163d St..........	Roentgenology
Niagara Falls		
Scott, Walter Roger..	598 Pine Ave..............	Radiology
Ossining		
Wyser, Dorcan D.....	Ossining Hospital.........	Roentgenology
Oswego		
Lavine, Reuben.......	25 W. Oneida St..........	Diagnostic roent.
Wallace, H. M.......	140 W. 5th St............	Roentgenology
Peekskill		
Snowden, Fred A.....	108 Depew St..............	Roentgenology
Port Chester		
West, Theodore S....	324 Westchester Ave......	Radiology
Poughkeepsie		
Davison, Chester O...	Vassar Brothers Hospital..	Radiology
Richmond Hill		
Voltz, Albert L.......	11520 Myrtle Ave..........	Radiology
Rochester		
Almy, Max A.........	16 N. Goodman St.........	Roentgenology
Davidson, Sol C......	277 Alexander St..........	Radiology
Flynn, James M......	277 Alexander St....... ..	Radiology
Green, Joseph H	277 Alexander St....... ..	Roentgenology
Palmer, Myron B.....	277 Alexander St..........	Radiology
Sanders, L. J....... .	213 Alexander St..........	Roentgenology
Thomas, Camp C.....	476 Lake Ave.............	Roentgenology
Saratoga Springs		
King, Earl H.........	75 Caroline St............	Roentgenology
Syracuse		
Caliva, Salvatore.....	510 Prospect Ave....... ...	Diagnostic roent.
Childs, Donald S.....	713 E. Genesee St........	Roentgenology
Henry, Lucas S.......	116 E. Castle St....... .	Roentgenology
Potter, Carlton F....	820 S. Crouse Ave........	Roentgenology
Rulison, Foster C.....	713 E. Genesee St........	Roentgenology
Troy		
Hull, Thurman A.....	505 Broadway.............	Diagnostic roent.
Utica		
Powers, M. T.........	250 Genesee St............	Roentgenology
Watertown		
Pawling, Jesse R......	100 Stone St..............	Roentgenology Radium therapy
White Plains		
Duckworth, R. D.. ...	57 Maple Ave.............	Roentgenology
Sherman, Herbert.....	99 Church St..............	Roentgenology

NORTH CAROLINA

Name	Address	Type of Service
Asheville		
Murphy, G. W........	Flat Iron Bldg............	Roentgenology *
Charlotte		
Lafferty, Robert H....	127 W. 7th St.............	Radiology
Phillips, Clyde C.....	19 W. 7th St..............	Radiology
Durham		
Reeves, R. J.........	Duke Hospital.............	Radiology
Greensboro		
Rhudy, Booker E.....	101 N. Elm St............	Roentgenology
Raleigh		
Noble, Robert P......	131 W. Hargett St........	Roentgenology *
Statesville		
McElwee, R. S.......	Stearns Bldg.............	Roentgenology
Winston-Salem		
Rousseau, J. P.......	310 W. 4th St............	Radiology

NORTH DAKOTA

Name	Address	Type of Service
Bismarck		
Berg, Henning Milton	221, 5th St...............	Roentgenology *
Fargo		
Rothnem, Thos. Peter.	801 Broadway.............	Roentgenology
Grand Forks		
Woutat, H. G........	318 DeMers Ave.	Roentgenology
Minot		
Gates, Russell........	20, 4th Ave. S.W..........	Roentgenology *

OHIO

Name	Address	Type of Service
Akron		
Beals, John A	St. Thomas Hospital.......	Diagnostic roent.
Selby, John H........	159 S. Main St...........	Roentgenology
Stall, A. H.....	City Hospital............	Radiology
Stewart, J. E........	159 S. Main St...........	Roentgenology
Ashtabula		
Collander, P. J.......	217 Park Pl..............	Roentgenology
Canton		
Peters, Chester M.....	709 Cleveland Ave. N.W....	Radiology
Peterson, E. O........	120 Tuscarawas St. W.....	Roentgenology *
Shorb, John E........	427 Market Ave. S.........	Roentgenology *
Chillicothe		
Holmes, Ralph W.....	57 W. Main St............	Roentgenology
Cincinnati		
Bader, E. R..........	628 Elm St................	Radiology
Brodberger, Wm. L...	2556 Eastern Ave.........	Roentgenology
Brown, Samuel.......	707 Race St..............	Roentgenology *
Doughty, Wm. M.....	628 Elm St...............	Radiology
Goosmann, Charles...	22 W. 7th St.............	Radiology
Lange, Sidney........	19 Garfield Place..........	Radiology
Reineke, Harold G ...	Cincinnati General Hospital	Roentgenology *
Warne, B. M.........	19 Garfield Place..........	Roentgenology
Cleveland		
Bettelheim, Frederick.	1020 Huron Rd............	Radiology
Farmer, H. L........	10515 Carnegie Ave........	Radiology
Freedman, Edward F..	25 Prospect Ave., N.W....	Roentgenology
Hill, W. C...........	10515 Carnegie Ave.......	Radiology
LeFevre, Walter I	9400 Euclid Ave..........	Roentgenology
Mahrer, H. A.........	10515 Carnegie Ave........	Roentgenology
May, Raymond V.....	10515 Carnegie Ave........	Radiology
May, Robert J........	10515 Carnegie Ave........	Radiology
McCoy, Charles C.....	Lakeside Hospital..........	Roentgenology *
McNamee, Edgar P ..	25 Prospect Ave., N.W....	Diagnostic roent.
Nichols, B. H...... .	2050 E. 93d St...........	Radiology
Osmond, John D.... .	10515 Carnegie Ave........	Radiology
Portmann, U. V......	Cleveland Clinic...........	Roentgen therapy Radium therapy
Steel, David..........	Lakeside Hospital.........	Roentgenology
Thomas, M. A........	10515 Carnegie Ave........	Radiology
Columbus		
Bowen, Chas. F	332 E. State St...........	Radiology
Means, Hugh J.......	683 E. Broad St...........	Radiology
Miller, W. H.........	328 E. State St...........	Radiology
Reinert, Edward G....	350 E. State St......... .	Radiology
Riebel, Frank A......	15 W. Goodale St.........	Roentgenology
Weirauk, H. V.......	9 Buttles Ave......... ...	Roentgenology
Dayton		
Burnett, Harry W....	201 S. Main St....... ..	Radiology
Delscamp, W. H......	201 S. Main St......... ..	Roentgenology
Jones, Lynn M......	117 S. Main St...........	Roentgenology *
Fremont		
Philo, D. W..........	209 W. State St...........	Roentgenology
Gallipolis		
Wilson, Milo.........	....	Radiology
Hamilton		
Benzing, George.....	R.D. 3....................	Radiology
Lakewood		
McDowell, John R....	15701 Detroit Ave.........	Roentgenology
Shetter, North W.....	14600 Detroit Ave.........	Roentgenology
Lima		
Thomas, Herbert A...	131 N. Elizabeth St........	Radiology
Massillon		
Holston, J. D........	Massillon City Hospital....	Diagnostic roent.
Piqua		
Spencer, Robert D....	400 N. Main St............	Roentgenology
Salem		
Heck, Stanton........	1160 E. State St..........	Roentgenology
Springfield		
Brubaker, E. R.......	8 W. Main St.............	Radiology
Steubenville		
Miller, J. E..........	401 Market St.............	Radiology
Toledo		
Kahn, Dalton.........	237 Michigan St...........	Roentgenology
Murphy, John T......	421 Michigan St...........	Radiology
Warren		
Gauchat, Paul C......	197 W. Market St.........	Roentgenology
Simpson, D. G........	1 Main St.................	Roentgenology

Name	Address	Type of Service
Youngstown		
Bachman, M. H.	314 N. Phelps St.	Roentgenology *
Heberding, John	151 W. Rayen Ave.	Roentgenology
Heeley, J. A.	Youngstown Clinic	Roentgenology
Meyer, N. N.	23 Central Square	Diagnostic roent.
Zanesville		
Holston, J. G. F.	620 South St.	Roentgenology

OKLAHOMA

Name	Address	Type of Service
Enid		
Newell, W. B.	502 N. Independence St.	Roentgenology
Marlow		
Talley, C. N.		Diagnostic roent.
McAlester		
Johnston, James C.	216½ E. Choctaw Ave.	Roentgenology
Oklahoma City		
Heatley, John E.	119 N. Broadway	Diagnostic roent.
Myers, Ralph Emerson	1200 N. Walker St.	Radiology
Roland, Marion M.	119 N. Broadway	Radiology
Shawnee		
Hughes, J. E.	14 E. 9th St.	Diagnostic roent. Radium therapy
Sulphur		
Annadown, P. V.		Diagnostic roent.
Tulsa		
Larrabee, W. S.	108 W. 6th St.	Roentgenology
Lhevine, Morris B.	108 W. 6th St.	Diagnostic roent.
Stuart, Leon H.	7 W. 6th St.	Roentgenology

OREGON

Name	Address	Type of Service
Portland		
Dixon, William	193, 11th St.	Diagnostic roent.
Haworth, Wallace	193, 11th St.	Roentgenology
Palmer, Dorwin L.	430 Morrison St	Radiology
Walker, Ralph C.	364 Washington St.	Radiology
Wight, Otis B.	193, 11th St.	Radium therapy

PENNSYLVANIA

Name	Address	Type of Service
Allentown		
Smyth, Thos. L.	111 N. 8th St.	Radiology
Troxell, Wm. C.	941 Hamilton St	Radiology
Altoona		
Alleman, George E.	1410, 12th Ave.	Roentgenology
Bliss, Gerald D.	1220, 13th Ave.	Radiology
Ashland		
Mulligan, P. B.		Roentgenology
Bethlehem		
Leibert, H. F.	338 Wyandotte St.	Roentgenology
Chester		
Egbert, Walter E.	601 E. 13th St.	Roentgenology *
Sharpe, A. Maxwell	708 Sproul St.	Roentgenology *
Clearfield		
Reiley, W. E.		Radiology
Coatesville		
Perkins, J. A.	367 Chestnut St.	Diagnostic roent.
Danville		
Hawley, S. J.		Roentgenology *
DuBois		
Gann, G. W.	49 E. Long Ave.	Roentgenology
McCormick, A. F.	Maple Avenue Hospital	Roentgenology
Easton		
Quiney, James J.	309 Bushkill St.	Radiology
Erie		
Putts, B. Swayne	117 W. 8th St.	Roentgenology
Greensburg		
McMurray, H. A.	107 S. Main St.	Roentgenology
Hanover		
Bortner, C. E.	123 York St.	Diagnostic roent.
Harrisburg		
Ritzman, A. Z.	234 State St.	Roentgenology
Hatboro		
Shoemaker, Robt., 3d.		Roentgenology
Hazleton		
Dessen, Louis A.	4 W. Broad St.	Roentgenology
Huntingdon		
Keichline, John M.		Radiology
Johnstown		
Stewart, H. M.	406 Main St.	Radiology
Kingston		
Howell, G. L.	Kingston Corners Bldg.	Roentgenology
Lancaster		
Davis, Henry B.	530 N. Lime St.	Roentgenology Radium therapy
Snoke, Paul O.	530 N. Lime St.	Roentgenology
Swab, Robert D.	23 E. Walnut St.	Roentgenology
Lebanon		
Boger, John D.	341 Cumberland St.	Diagnostic roent.
Lewistown		
Weaver, O. M.	12 S. Main St.	Roentgenology
Lock Haven		
Green, Geo. D.		Roentgenology
McKeesport		
Snedden, A. R.	522 Walnut St.	Roentgenology
Meadville		
Gingold, Joseph R.	Spencer Hospital	Roentgenology
New Castle		
Cooper, J. R.	111 E. North St.	Radiology
Norristown		
Campbell, Raymond F.	514 Swede St.	Diagnostic roent.
Perkasie		
Strouse, O. H.		Roentgenology
Philadelphia		
Barker, Walter C.	Chestnut and 20th Sts.	Radiology
Bird, G. C.	1415 W. Erie St.	Roentgenology
Borzell, Francis F.	4940 Penn St.	Roentgenology
Bowen, David R.	Pennsylvania Hospital	Radiology
Bromer, Ralph S.	Hospital of the Protestant Episcopal Church	Roentgenology
Bruck, Samuel	2104 Pine St.	Roentgenology
Carpenter, Samuel A.	2265 N. 16th St.	Roentgenology
Chamberlain, W. E.	Temple University Hospital.	Radiology
Clagett, A. H.	1737 Chestnut St.	Roentgenology
Cohen, Leon Solis	1923 Spruce St.	Roentgenology
Downs, E. E.	Jeannes Hospital	Radiology
Edeiken, Louis	1923 Spruce St.	Radiology
Farrell, John T., Jr.	235 S. 15th St.	Roentgenology *
Gershon-Cohen, J.	1832 Spruce St.	Roentgenology
Henry, Robert W.	768 S. 15th St.	Roentgenology
Koenig, Carl F.	1734 Harrison St.	Roentgenology
Manges, Willis F.	235 S. 15th St.	Roentgenology *
Morgan, J. D.	2226 Delancey St.	Radiology
Newcomet, W. S.	3501 Baring St.	Radiology
Pancoast, Henry K.	3400 Spruce St.	Radiology
Pendergrass, Eugene P.	3400 Spruce St.	Radiology
Percival, M. F.	Methodist Episcopal Hosp.	Radiology
Pfahler, George E.	1321 Spruce St.	Radiology
Post, Joseph W.	1930 Chestnut St.	Roentgenology
Rieger, Chas. L. W.	Hahnemann Med. Coll. Hosp.	Roentgenology *
Rosenbaum, George	1521 Spruce St.	Radiology
Schmidt, Wm. Henry.	1601 Walnut St.	Radiology
Sender, Arthur C.	1311 W. Allegheny Ave.	Roentgenology
Spackman, E. W.	1824 Chestnut St.	Roentgenology
Stull, H. Tuttle	3300 N. Broad St.	Roentgenology
Vastine, Jacob H.	1321 Spruce St.	Radiology
Widmann, B. P.	250 S. 18th St.	Radiology
Wiley, Louis R.	1512 N. 15th St.	Roentgenology
Zulick, J. Donald	2008 Walnut St.	Roentgenology
Philipsburg		
Benson, Andrew L.		Roentgenology
Pittsburgh		
Alley, Reuben G.	Western Pennsylvania Hospital	Diagnostic roent.
Caldwell, C. S.	520 S. Aiken Ave.	Diagnostic roent.
Fisher, J. W.	500 Penn Ave.	Radiology
Gorfinkell, Julius	3401, 5th Ave.	Roentgenology
Grier, G. W.	500 Penn Ave.	Radiology
Grimm, Homer W.	500 Penn Ave.	Radiology
Johnston, Z. A.	500 Penn Ave.	Roentgenology
McAdams, Edward C.	119 S. Highland Ave.	Roentgenology
McCullough, John F.	500 Penn Ave.	Radiology
Ray, William B.	110 E. Stockton Ave.	Roentgenology *
Robinson, Ralph V.	500 Penn Ave.	Radiology
Schaefer, C. N.	500 Penn Ave.	Radiology
Schumacher, F. L.	500 Penn Ave.	Roentgenology
Reading		
Meter, Edward G.	230 N. 5th St.	Roentgenology *
Travis, Richard C.	249 N. 5th St.	Radiology
Rochester		
McCaskey, F. H.		Roentgenology
Scranton		
Jackson, B. H.	327 N. Washington Ave.	Radiology
Milkman, Louis A.	327 N. Washington Ave.	Roentgenology
von Poswik, Gisela	217 Jefferson Ave.	Roentgenology
Shippensburg		
Stewart, Alexander		Roentgenology
Tamaqua		
Hinkel, William H.	243 E. Broad St.	Roentgenology
Uniontown		
Hess, George H.	101 Morgantown St.	Roentgenology
West Chester		
Pennell, Howard Y.	Chester County Hospital	Roentgenology
Wilkes-Barre		
DesJardins, A.	Wilkes-Barre General Hosp.	Roentgenology *
Rogers, Lewis L.	38 N. Franklin St.	Roentgenology
Wilkinsburg		
McGregor, William J.	901 Wood St.	Roentgenology
Williamsport		
Schneider, Geo. L.	212 Pine St.	Roentgenology
Wursted, L. E.	416 Pine St.	Roentgenology
York		
Bennett, J. H.	1253 W. Market St.	Radiology
Landes, L. S.	454 W. Market St.	Diagnostic roent.
Lutz, J. Fletcher	141 E. Market St.	Roentgenology

RHODE ISLAND

Name	Address	Type of Service
Newport		
Wheatland, Marcus F.	84 John St.	Diagnostic roent.
Providence		
Albert, Simon	108 Waterman St.	Diagnostic roent.
Batchelder, Philip	188 Waterman St.	Roentgenology
Farrell, John T.	68 Jackson St.	Diagnostic roent.
Gerber, Isaac	201 Waterman St.	Radiology
Kelley, Jacob S.	153 Smith St.	Diagnostic roent.
Woonsocket		
Garrison, Norman S.	38 Hamlet Ave.	Radiology

SOUTH CAROLINA

Name	Address	Type of Service
Anderson		
Wrenn, Frank	Anderson County Hospital	Radiology
Charleston		
Taft, Robert B.	105 Rutledge St.	Radiology
Columbia		
Pitts, Thomas A.	1515 Marion St.	Radiology
Rodgers, Floyd D.	1417 Hampton St.	Radiology
Florence		
Hay, Percy D., Jr.	111 W. Cheves St.	Radiology
Greenville		
Judy, W. S.	107 E. North St.	Roentgenology
Spartanburg		
Sheridan, William M.	116 W. Main St.	Radiology

SOUTH DAKOTA

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Aberdeen		
McCarthy, Paul V.		Roentgenology
Pierre		
McLaurin, A. A.		Roentgenology *
Sioux Falls		
Nessa, Nellus J.	301 S. Minnesota Ave.	Roentgenology
Watertown		
Koren, F.	Broadway and Kemp Ave.	Roentgenology *

TENNESSEE

NAME	ADDRESS	TYPE OF SERVICE
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Bogart, F. B.	546 McCallie Ave.	Roentgenology
Frere, John Marsh	707 Walnut St.	Roentgenology *
Marchbanks, S. S.	546 McCallie Ave.	Radiology
Johnson City		
Hankins, John L.	300 N. Boone St.	Roentgenology
Peyton, R. L.	Veterans Administr'n Home	Roentgenology
Knoxville		
Abercrombie, Eugene.	603 W. Main Ave.	Roentgenology
Casenburg, S. F.	601 Walnut St.	Roentgenology
McCampbell, H. H.	614 Walnut St.	Radiology
Memphis		
Bethea, W. R.	869 Madison Ave.	Roentgenology *
Coley, Steve W.	1265 Union Ave.	Roentgenology *
Heacock, Charles H.	20 S. Dunlap St.	Radiology
Herring, J. H.	995 Madison Ave.	Roentgenology
King, J. Cash	915 Madison Ave.	Roentgenology
Lawrence, W. S.	248 Madison Ave.	Radiology
Paine, Robert	248 Madison Ave.	Radiology
Pulliam, H. N.	617 S. McLean Blvd.	Roentgenology
Robinson, W. W.	1291 Union Ave.	Roentgenology
Nashville		
McClure, C. C.	706 Church St.	Radiology
Shoulders, H. S.	706 Church St.	Roentgenology

TEXAS

NAME	ADDRESS	TYPE OF SERVICE
Amarillo		
Van Sweringen, Walter	301 Polk St.	Roentgenology
Vaughan, John H.	724 Polk St.	Radiology
Beaumont		
Ledbetter, L. H.	388 Pearl St.	Radiology
White, C. M.	595 Orleans St.	Roentgenology
Corsicana		
Curtis, Richard C.	101 N. Beaton St.	Roentgenology
Dallas		
Beaver, N. B.	1719 Pacific Ave.	Radiology
Martin, Charles L.	1719 Pacific Ave.	Radiology
Martin, J. M.	1719 Pacific Ave.	Radiology
Spangler, Davis	4105 Live Oak St.	Radiology
Eastland		
Caton, J. H.		Roentgenology
El Paso		
Cathcart, J. W.	114 Mills St.	Radiology
Mason, C. H.	114 Mills St.	Radiology
York, M. N.	Bassett Tower	Roentgenology
Fort Worth		
Bond, Tom B.	600 W. 10th St.	Radiology
Hyde, N. R.	600 W. 10th St.	Radiology
Jagoda, S.	1212 North St.	Radiology
O'Bannon, R. P.	1028, 5th Ave.	Radiology
Houston		
Durrance, Fred Y.	1215 Walker Ave.	Diagnostic roent.
Harris, C. P.	1625 Main St.	Roentgenology *
McDeed, W. G.	1215 Walker Ave.	Roentgenology *
McHenry, R. K.	1215 Walker Ave.	Roentgenology
Sauermann, Wm. O.	804 Travis St.	Roentgenology
Lubbock		
Smith, Jerome H.	Lubbock Sanitarium and Clinic	Roentgenology Radium therapy
Mineral Wells		
Yeager, Robt. L.		Roentgenology
Orange		
Barr, Richard E.		Radiology
San Antonio		
Barron, Wm. Marshall	705 E. Houston St.	Roentgenology *
Hamilton, W. S.	705 E. Houston St.	Diagnostic roent.
Lowry, R. H., Jr.	Station Hospital, Fort Sam Houston	Roentgenology
Ostendorf, W. A.	507½ E. Houston St.	Roentgenology
Sherman		
Henschen, G. E.	500 N. Highland Ave.	Roentgenology *
Temple		
Giles, Roy G.	Scott and White Clinic	Roentgenology *
Powell, Eugene V.	304 S. 22d St.	Radiology
Wilson, R. T.	Scott and White Clinic	Roentgenology *
Waco		
Jenkins, I. Warner	425 Austin Ave.	Radiology
Wichita Falls		
Wilcox, Clark A.	1300, 8th St.	Roentgenology *

UTAH

NAME	ADDRESS	TYPE OF SERVICE
Salt Lake City		
Coray, Q. B.	54 E. South Temple St.	Roentgenology *
Kerby, James P.	9 Exchange Pl.	Roentgenology

VERMONT

NAME	ADDRESS	TYPE OF SERVICE
Burlington		
Caldwell, Nathan R.	Mary Fletcher Hospital	Roentgenology *
Robinson, Carl F.	266 Main St.	Roentgenology
Wilson, S. A.	150 Bank St.	Diagnostic roent.

VIRGINIA

NAME	ADDRESS	TYPE OF SERVICE
Lynchburg		
Spencer, Hunter B.	Allied Arts Bldg.	Radiology
Newport News		
Davis, R. A.	2901 West Ave.	Roentgenology
Norfolk		
Eley, Clayton W.	Hosp. of St. Vincent de Paul	Roentgenology *
Petersburg		
Clarkson, Wright	30 Franklin St.	Radiology
Richmond		
Flanagan, E. L.	116 E. Franklin St.	Roentgenology
Gray, Alfred L.	118 E. Franklin St.	Roentgenology
Hodges, Fred M.	1000 W. Franklin St.	Radiology
Tabb, J. Lloyd	1000 W. Grace St.	Roentgenology *
Talley, D. D., Jr.	501 E. Franklin St.	Roentgenology *
Whitehead, L. J.	501 E. Franklin St.	Roentgenology *
Roanoke		
Armentrout, John F.	30½ Franklin Rd.	Radiology
McKinney, Joseph T.	30½ Franklin Rd.	Roentgenology *
University		
Archer, Vincent W.		Roentgenology

WASHINGTON

NAME	ADDRESS	TYPE OF SERVICE
Longview		
Hayes, Richard	1267 Commerce Ave.	Roentgenology
Seattle		
Bourns, Frank S.	509 Olive St.	Radiology
Dwyer, Maurice F.	1115 Terry Ave.	Radiology
Garhart, Manch N.	1305, 4th Ave.	Radiology
Holtz, Kenneth J.	920, 2d Ave.	Roentgenology
Koenig, Carl E.	509 Olive St.	Roentgenology
Nichols, H. E.	1215, 4th Ave.	Roentgenology
Snively, J. Howard	509 Olive St.	Roentgenology *
Stephens, Lorenzo L.	1215, 4th Ave.	Radiology
Thompson, H. B.	1307, 4th Ave.	Radiology
Thomson, Curtis H.	1305, 4th Ave.	Roentgenology *
Spokane		
Aspray, Jos.	407 Riverside Ave.	Roentgenology
Betts, Arthur	407 Riverside Ave.	Radiology
Ward, Chas. B.	407 Riverside Ave.	Radiology
Tacoma		
Fishel, C. R.	740 St. Helens Ave.	Roentgenology
McCarty, E. D.	740 St. Helens Ave.	Roentgenology
Walla Walla		
Johannesson, C. J.	1 W. Main St.	Roentgenology
Yakima		
Cornett, Geo. W.	321 E. Yakima Ave.	Roentgenology *

WEST VIRGINIA

NAME	ADDRESS	TYPE OF SERVICE
Charleston		
Lambert, A. C.	240 Capitol St.	Roentgenology
Fairmont		
Francis, Charles T.	Cook Hospital	Roentgenology
Hollidays-Cove		
Davis, Geo. H.		Diagnostic roent.
Huntington		
MacKenzie, A. R.	935, 4th Ave.	Roentgenology *
Vinson, L. T.	317, 9th St.	Roentgenology
Parkersburg		
Boice, Ralph Homer	717 Ann St.	Roentgenology
Rose, Lonzo O.	510½ Market St.	Radiology
Wheeling		
Bippus, E. S.	77, 16th St.	Roentgenology
Clovis, C. H.	Ohio Valley General Hosp.	Radiology
Kalbfleisch, W. K.	58, 16th St.	Roentgenology
Quimby, Will A.	1401 Market St.	Radiology

WISCONSIN

NAME	ADDRESS	TYPE OF SERVICE
Appleton		
McGrath, E. F.	114 W. College Ave.	Radiology
Beloit		
Wilson, Russell F.	Beloit Municipal Hospital	Radiology
Eau Claire		
Baird, J. C.	401 S. Barstow St.	Roentgenology
Green Bay		
Olmsted, Austin O.	205 E. Walnut St.	Radiology
Shewalter, G. M.	305 E. Walnut St.	Roentgenology
Troup, R. L.	306 Cherry St.	Roentgenology
Janesville		
Kuegle, F. H.	19 S. Main St.	Roentgenology
Kenosha		
Bowing, Irwin E.	625, 57th St.	Roentgenology
Sokow, Theodore	723, 58th St.	Radiology
LaCrosse		
McLoone, J. E.	319 Main St.	Roentgenology
Madison		
Littig, Lawrence V.	925 Mound St.	Roentgenology
Pohle, E. A.	1300 University Ave.	Radiology
Sisk, J. Newton	16 S. Henry St.	Roentgenology Radium therapy
Marshfield		
Potter, R. P.		Roentgenology
Milwaukee		
Altenhofen, A. R.	132 W. Wisconsin Ave.	Roentgenology
Baumgarten, S.	205 E. Wisconsin Ave.	Roentgenology
Epperson, Paul S.	324 E. Wisconsin Ave.	Roentgenology
Habbe, John Edwin	231 W. Wisconsin Ave.	Roentgenology
Podlasky, Harry B.	536 W. Wisconsin Ave.	Roentgenology
Zmyslony, W. P.	931 W. Mitchell St.	Diagnostic roent.
Neenah		
Greenwood, S. D.		Radiology
Salem		
Fletcher, Wm.		Roentgenology
Superior		
Saunders, Geo.	1501 Tower Ave.	Roentgenology
Waukesha		
Peterson, Geo. E.	831 N. Grand Ave.	Roentgenology

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SATURDAY, MARCH 19, 1932

DEATHS OF PHYSICIANS PUBLISHED IN 1931

During 1931, the deaths of 2,952 physicians of the United States were recorded in The Journal as compared with 2,943 during 1930 and 2,797 during 1929. The list includes one who died in the Philippine Islands, one in Porto Rico, three in China, two in India and one each in France, South America, Central America, Mexico, Norway and Sweden. The total number published was 3,074, which includes 122 Canadians. In 1931 the obituaries of 84 women physicians were published, as compared with 80 in 1930. Twenty-six Negro physicians died during the year. The graduates of medical schools in the United States for the fiscal year ended June 30, 1931, numbered 4,735. Deducting the number of physicians whose obituaries were published, there was a net addition to the ranks of the profession for the year of 1,783, which, figured thus, is an increase of 161 over 1930.

Ages.—The average age at death of those classified as of the United States was 63.8, as compared with 63.7 for 1930. Two physicians were 99 years old and thirty lived to be 90 or more. One was 23 years old and two were 24. Twenty physicians died between the ages of 25 and 29, 51 died between 30 and 34, 66 between 35 and 39, 86 between 40 and 44, 169 between 45 and 49, 285 between 50 and 54, 360 between 55 and 59, 426 between 60 and 64, 428 between 65 and 69, 420 between 70 and 74, 296 between 75 and 79, 202 between 80 and 84, and 140 at or above 85. March was the month of most deaths, with 292.

Accidental Deaths.—There were 139 physicians who died as a result of accidents in 1931, compared with 130 in the previous year. Automobile accidents accounted for seventy-one, five more than in 1930. In 1931, deaths from falls numbered twenty-two, the second largest number among those due to accidental causes. Eleven deaths were caused by drowning, seven by airplane accidents, six by gunshot wounds, three each by illuminating gas and carbon monoxide, and two from overdoses of medicine. The remaining accidental deaths resulted from the following causes; burns, phosphorus, carbon tetrachloride and alcoholic poisoning, earthquake, explosion, anesthetic, cut by glass, head caught in drawer of wardrobe trunk, collision of horse and buggy with train, burns from x-ray machine, crushed by automatic elevator, baked in electric cabinet; cut while shaving, collapse of concrete pillar, and street car accident.

Suicides and Homicides.—Sixty-four physicians committed suicide in 1931, two less than in 1930. The method most frequently employed was shooting, which accounted for thirty-four deaths. Poison was used in five cases, hanging in four, incised wounds four, drugs and gas three each, carbolic acid, drowning, anesthesia and strangulation one each, and in the remaining cases the method was not reported. There were nine homicides caused by shooting and one by stabbing.

Causes of Deaths.—Heart disease was again the leading cause of death, with 1,065 deaths compared with 1,059 for 1930. Some contributory causes are included in the tabulation, as they have been in former years. A report that the cause of death was "chronic nephritis and heart disease," for example, is so published in The Journal and is reported on the statistical charts under both diseases. Of the deaths from heart disease, endocarditis or myocarditis was specified in 342, angina pectoris in 114 and pericarditis in 7. Cerebral hemorrhage was the second most frequent cause reported, with 365 deaths; 25 additional deaths were reported as due to paralysis. Pneumonia was the third most frequent cause; lobar pneumonia was reported in 254 cases and bronchopneumonia in 58. Fourth on the list was arteriosclerosis, with 252 deaths. Nephritis caused 237 deaths, of which 18 were specified as acute nephritis. Of the 236 deaths caused by cancer, the stomach and liver were affected in 63 cases, the intestine in 29, the prostate gland in 24, the buccal cavity in 12, and in 108 the part affected was not specified. Embolism and thrombosis caused 104 deaths; uremia, 80; tuberculosis, 65; diabetes mellitus, 64; septicemia, 45; appendicitis and typhlitis, 43; intestinal obstruction, 22, and other diseases of the digestive system, 38; diseases of the prostate, 40, and other diseases of the genito-urinary system, 25; influenza, 36, and other diseases of the respiratory system, 40; senility, 36; cirrhosis of the liver, 26; hypertension, 24; peritonitis, 23; ulcer of the stomach, 21, and other diseases of the stomach, 6. Conditions that caused a few deaths each are as follows: cholecystitis, 18; pernicious anemia, and diseases of the bones and organs of locomotion, 16 each; encephalitis, 15; biliary calculi and gangrene, 14 each; leukemia, 13; meningitis and sarcoma, 11 each; chronic bronchitis and asthma, 9 each; erysipelas, 8; dementia paralytica, 8; other diseases of the nervous system, 7; diseases of the liver, agranulocytic angina and paralysis agitans, 6 each; carbuncle and diseases of the veins, 5 each; diseases of the circulatory system, pleurisy, acute articular rheumatism and aneurysm, 4 each; alcoholism, hernia, Hodgkin's disease, sinusitis and agranulocytosis, 3 each; tetanus, tumors, shock, heat prostration, septic sore throat, diseases of the spinal cord and diseases of the artery, 2 each. The following list of causes was given for one case each: general diseases, locomotor ataxia, diseases of organs of hearing, diseases of skin or cellular system, scarlet fever, pancreatitis, chorea, anthrax, hemorrhagic purpura, Banti's disease, psittacosis, lymphosarcoma, splenic anemia, insanity, hiccups, Friedreich's ataxia, pellagra, episiotomy, brain abscess, sunstroke, undulant fever, encephalomalacia, adenoma of the pituitary gland, adenoma of the prostate, epilepsy, poliomyelitis, acute abscess, secondary anemia, hypernephroma and brain tumor.

Positions.—Among the decedents were 159 who were or had been teachers in medical schools, 223 who served in the World War, 56 veterans of the Civil War and 42 veterans of the Spanish-American War. Eighty-two had been health officers; 81, members of boards of education, and 70, members of boards of health. There were 46 coroners, 43 mayors of municipalities, 42 members of state legislatures, 14 members of the state boards of medical examiners, 14 members of the U. S. Army Medical Corps and 9 of the U. S. Naval Medical Corps. Twenty-five authors, 20 bank presidents, 16 druggists, 11 members of city councils, 9 editors, 7 missionaries, 6 postmasters, 4 dentists, 4 justices of the peace, 2 lawyers, 1 clergyman, and 1 police surgeon were also included.

Association Officers.—The obituaries published in 1931 of former officers of the American Medical Association included two vice presidents, two trustees, fifteen members of the House of Delegates, ten section officers and one member of a council. Thirty-five presidents of state societies died during the year, and five secretaries.

"FREE" AND "BOUND" WATER IN COMPENSATION FOR LOSS OF BLOOD

A survey of the composition of body fluids and tissues emphasizes the large relative proportion accounted for by water. The digestive fluids contain only about 1 per cent of total solids; even bladder bile, after the usual desiccation, is four-fifths water. Of the skeletal muscle, only 25 per cent is solids; even fresh bone will lose two fifths of its weight when heated to constant weight. The enamel of the teeth, the hardest tissue of the body, contains 5 per cent of water. In spite of the ubiquitous distribution of water, it is safe to say that pure water does not exist as such in the organism. In it are dissolved a great variety of substances, ranging from typical inorganic crystalloids such as sodium chloride at one extreme to colloidal solutes such as the proteins at the other. When a piece of tissue is rapidly frozen at a low temperature and an estimate made of the quantity of water present in the form of ice, it is usually found that this amount of moisture is less than that determined by heating to constant weight. Observations of this nature have led to the conclusion that part of the water in tissues and body fluids is "free," whereas the rest is "bound" more tenaciously to the colloids either in solution or in contact with it and is therefore more difficult to release.

The appreciation of the physical importance of fluid volume in maintaining physiologic equilibriums has prompted an examination of the relative parts played by "free" and "bound" water in certain pathologic conditions. In a recent investigation, Robinson and Parsons[1] followed the changes in water content of blood and muscle under various experimental conditions analogous to shock. After a moderately severe hemorrhage the usually observed compensation for loss of volume occurs by a passage of water from the tissues, especially the muscles, to the blood. The replacement of erythrocytes and hemoglobin is delayed for a considerable time. While both the total and the "free" water of the blood was augmented, the restoration of the plasma volume was largely due to increase in "free" water; the muscles lost both "free" and "bound" water, though in one experiment the compensation for lost blood was made principally at the expense of the "free" water of the muscle. After trauma to an extremity there was a shift in water. Moderate injury caused a decrease in "free" water in the blood with little change in "bound" water; if the trauma was severe enough to produce hemorrhage there was the typical posthemorrhagic dilution of the blood caused largely by increase in the "free" water, accompanied by a loss of free water from the uninjured muscles. After the injection of histamine, the blood became more concentrated as the result of a loss of "free" water and the muscle gained water at about the same rate. In one experimental animal, a spontaneous fall of blood pressure occurred with a decrease in water of the blood and a concomitant gain in muscle water. In both instances the changes were accounted for entirely by the shift in "free" water.

Extensive studies by Blalock and his co-workers[2] have demonstrated that the fall in blood pressure following trauma in the viscera, injury to the extremities and severe burns can be accounted for in large part by the passage of water from the blood to the injured areas. The observations of Robinson and Parsons show not only that uninjured tissue gives up water to the blood under such circumstances but also that this readily available fluid arises principally from the "free" water component of the muscle. The cooperation of uninjured tissue in restoring fluid volume to the blood after extensive hemorrhage either to the outside or into damaged tissue is a striking example of compensation in the organism. The studies have shown the notable mobility of part of the tissue water; on the other hand, water bound to protoplasmic colloids or concerned in the maintenance of essential physicochemical equilibriums involving colloidal solutes tends to be more stable and less responsive to the emergency demands of the organism as a whole.

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[1] Robinson, William; and Parsons, Eloise: Hemorrhage and "Shock" in Traumatized Limbs, Arch. Path. **12**: 869 (Dec.) 1931.

[2] Blalock, Alfred: Experimental Shock, Arch. Surg. **22**: 598-610 (April) 1931. Beard, J. W., and Blalock, Alfred: Ibid., p. 617. Johnson, G. S., and Blalock, Alfred: Ibid., p. 626. Harris, P. N., and Blalock, Alfred: Ibid., p. 638.

ABSORPTION THROUGH SINUS MUCOSA

Although the fundamental reactions and activities of all living cells are essentially alike, the mechanisms devised by nature to suit the exigencies of differentiation are varied. With the multiplication of cells constituting the organism the simple devices for digestion, absorption and respiration which satisfied the single-celled individual have been modified not so much in character as in allocation to specialized tissues. Differentiation has resulted in localization of these functions. Some of the most interesting of these adaptations center about the gastro-intestinal tract and its natural diverticula. In the mouth, stomach and intestine food is changed by chemical and mechanical means to soluble forms. But in this state of transformation it is still outside the body. Fundamentally, therefore, the phenomenon of absorption is of utmost importance in the life of the organism. In the gastro-intestinal tract proper this function is most highly developed in the small and large intestine, neither the mouth and esophagus nor the stomach being seriously considered as absorptive organs for the usual food materials in the light of the best experimental evidence. The epithelium in the lungs is extraordinarily efficient in allowing the passage of respiratory gases and it has been shown that the mucous membrane of the mouth also permits the diffusion of these gases.[1] There are occasions when it is desired to use drugs in certain of the evaginations of the alimentary canal specifically for their local influence; under these conditions the possibility of absorption into the systemic circulation becomes of considerable importance.

An investigation of the absorption from sinus mucosa has recently been reported by Childrey and Essex.[2] Various drugs and toxins were introduced into the frontal sinus of experimental animals under general anesthesia and absorption was detected by observing either the blood pressure or the appearance of the appropriate material in blood and urine depending on the substance used. The effect produced by subcutaneous or intravenous injections of the substance served as a check on the absorption through the sinus mucosa. Five times the dose of histamine giving a distinct depressor response after intravenous and subcutaneous administration gave negative results when injected into the nasal cavity and into the sinus. Four times the effective subcutaneous dose of nicotine failed to induce a positive reaction on the blood pressure when given in the sinus. Negative results were likewise recorded after injections of ephedrine and of epinephrine into the frontal sinus. Rattlesnake venom (crotalin) was then used, the criterion of its appearance in the circulation being a fall in blood pressure and an increase in red cell volume after subcutaneous injection. When this substance was placed in the frontal sinus, the blood pressure change was insignificant though there did occur a swelling of the erythrocytes. Phenolsulphonphthalein injected into the nasal mucosa showed a markedly delayed absorption and excretion compared to that after subcutaneous injection. The absorption from an infected sinus, however, was prompt though of abnormally long duration.

It is apparent that absorption of drugs and certain therapeutic agents from the nasal sinus and nasal cavity either does not occur or exhibits a low degree of efficiency. This is in marked contrast to some of the typical absorbing membranes elsewhere in the body. The experimental evidence leads to the conclusion that highly toxic substances may be used in the treatment of sinus disease without great danger of absorption. Again the slow absorption through sinus mucosa even when inflammatory changes have occurred permits the conclusion that bacterial toxins from infected sinuses are likewise absorbed with difficulty. Presumably these results are to be associated primarily with normal intact mucous membrane. Controlled observations with infected and inflamed mucous membranes should be made with a variety of substances and of bacterial agencies.

Current Comment

LOSS OF WEIGHT IN THE NEW-BORN

The characteristic loss of weight of infants soon after birth—a process extending over a period of days—has been the subject of much discussion and not a little clinical investigation by pediatricians. Those who contend that the characteristic phenomenon is "nature's way" and need not give the physician any undue concern argue that the alimentary tract of the new-born infant remains unable for some days to perform the essential digestive functions; hence it should be spared. Attempts to feed the infant in some special way during the period of weight loss have as a rule not been satisfactory. Mere loss of weight is not a formidable condition when one recalls the normal powers of recuperation that usually follow such recessions. But the relative inanition often brings about other consequences which later in life would certainly be considered pathologic. Thus there may be an "inanition temperature" during the period of greatest loss in weight—usually on the third or fourth day following birth. This has been ascribed to dehydration and lack of food. Icterus neonatorum also sometimes is an unwelcomed symptom. "Acidosis" often seems to be established. On this account Eder and Bakewell[1] of the Santa Barbara Clinic in California began the routine use of a carbohydrate (lactose) and a potential alkali (sodium citrate) in a large series of new-born infants. The California pediatricians announce that the addition of 5 grains of sodium citrate to each 2 ounces of 5 per cent lactose solution given to new-born infants during the first few days of life appears to be of value in decreasing the initial postnatal loss in weight. The average loss in 100 consecutive infants was 5.3 ounces, or 150 Gm. In comparison with untreated infants, weight at birth is regained earlier; 83 per cent had again reached their original weights on or before the fourteenth day. Only three infants had inanition temperature. The general condition of the infants as shown by activity, ability to nurse, color and absence of icterus neonatorum was far better than that of infants who had lactose solution without sodium citrate. Larger experience should indicate whether the proposed treatment is really worth while.

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[1] Henderson, Yandell; and Stehle, R. L.: Gas Tensions in the Tissues of the Mouth, J. Biol. Chem. 38: 67 (May) 1919.

[2] Childrey, J. H., and Essex, H. E.: Absorption from the Mucosa of the Frontal Sinus, Arch. Otolaryng. 14: 564 (Nov.) 1931.

THE FAMILY PHYSICIAN AND THE TRUST OFFICER

In the administration of estates, problems develop that cannot be solved by bankers alone or by an order of the probate court. That the administrator may manage an estate to the best interest of the family of the deceased, the trust officer must have knowledge of each member of the family. Mr. John H. Boushall[1] of the First National Bank of Tampa, Fla., suggests that the trust officer will find the necessary cooperation through the family physician. No one other than the family physician can know better the lives and the physical set up of each member of the family. In the administration of an estate, the trust officer first has to consider the widow, who has been plunged into business affairs through the death of her husband and, at the same time, brought to the verge of prostration. With the guidance of the family physician who knows her family, the trust officer will secure her confidence and cooperation. Some of the children may have peculiarities that will give the trust officer more trouble than any other feature of his administration. Such children may insist on being humored or receiving special consideration or special allowances, all of which will tax the trust officer's patience as well as the funds of the estate. To the physician who has seen the children grow up, such peculiarities are no cause of alarm. His advice and the child's understanding that the physician knows him add weight to the trust officer's decisions. When an influential friend of the family suggests that one of the children should take a trip hither and yon in search of better health, the family physician will know that what is really needed is an adjustment of personal habits to a more sensible mode of living. A friend may suggest to the trust officer, furthermore, that the neurotic child should be placed under the care of some noted and probably distant medical expert, and that might prove to be more expensive than the estate could afford. Again, it can be shown to the trust officer that such treatment may be unnecessary, for the family physician is able to understand and to evaluate the opinions and methods of specialists. The patient in this case also will know that the family physician knows the truth. Through the entire administration of the estate, Mr. Boushall suggests, decisions affecting the well being of the widow and children can be happily worked out through cooperation of the trust officer and the family physician, between whom there naturally will be a spirit of mutual respect and understanding.

Association News

MEDICAL BROADCAST FOR THE WEEK

American Medical Association Health Talks

The American Medical Association broadcasts on Monday from 12 noon to 12:05 p. m. over Station WBBM (770 kilocycles, or 389.4 meters) and other stations of the Columbia Broadcasting System, and on Wednesday and Friday from 2:25 to 2:30 p. m. over Station WBBM, Chicago.

The program for the week is as follows:

March 21. Cancer Among Women.
March 23. Fifty Years Later.
March 25. Too Many Children Spoil the Foster House.

There is also a fifteen minute health talk sponsored by the Association on Saturday from 11:15 to 11:30 a. m., over Station WBBM, Chicago.

The program for the week is as follows:

March 26. The Sign on Your House (concluded).

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

State Board of Health Reorganized.—Drs. Junius B. Harris, Sacramento, and Gifford L. Sobey, Paso Robles, were recently appointed members of the California Department of Public Health to succeed Drs. Robert A. Peers, Colfax, and Fred F. Gundrum, Sacramento, whose terms expired. Drs. Peers and Gundrum have served continuously as members of the board since 1915. In the reorganization of the board, Dr. John H. Graves, San Francisco, succeeded Dr. George E. Ebright as president, and Dr. Edward M. Pallette, Los Angeles, became vice president. Dr. Ebright will continue as a member. Other members of the board, in addition to those mentioned, are Drs. William R. P. Clark, San Francisco, and Giles S. Porter, Los Angeles, who is director of the department. Dr. Harris is president of the California Medical Association.

Society News.—Dr. Henry D. Chapin, Bronxville, N. Y., gave a lecture at Stanford University School of Medicine, San Francisco, March 4, on "Social Aspects of Child Welfare." ——Dr. John C. Meakins, Montreal, Que., Canada, addressed the San Francisco County Medical Society, March 15, on "Treatment of Cardiac Irregularities."——An annual midwinter course in otolaryngology was instituted in Los Angeles, January 15; the guest lecturers for the first course included Drs. Georges Portmann, Bordeaux, France; Edmund P. Fowler, New York, and Harry L. Baum, Denver.——The Northern California Public Health Association, at its annual meeting in San Francisco, January 30, elected Dr. Thomas A. Storey, Stanford University, president, and Dr. Herbert F. True, city health officer, Sacramento, president-elect. Other officers were

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[1] Eder, H. L., and Bakewell, Benjamin: Effect of Sodium Citrate on the Loss of Weight in the New-Born Infant, Am. J. Dis. Child. 42:1079 (Nov.) 1931.

[1] Boushall, J. H.: Doctors and Trust Officers, Am. Bankers A. J., January, 1932, p. 437.

Dr. Wilfred H. Kellogg, Berkeley, vice president; Dr. Walter H. Brown, Palo Alto, secretary, and Miss Mary E. Davis of the state department of public health, treasurer.——Dr. George Piness, Los Angeles, addressed the San Diego County Medical Society, March 8, on "Practical Application of Allergy in General Medicine."

Rules for Adoption of Children.—In an effort to avoid irregular methods used by superintendents of some maternity hospitals in the separation of infants from their mothers for adoption, the state board of health announces that the new adoption law requires:

1. That relinquishment for adoption must be signed by father or mother before subscribing witnesses and acknowledged before the agent of an organization licensed by the state department of social welfare.
2. A certified copy of the above relinquishment must be filed with the state department of social welfare, 111 State Building, San Francisco, within twenty-four hours.
3. Persons desiring to adopt a child may petition the superior court of the county in which they reside. Consent for adoption is required in all cases, except (*a*) in cases of adoption by step-parent in which one natural parent retains custody and control of child, and (*b*) in cases in which one of the agencies mentioned by the board joins in the petition for adoption.

The consent for adoption must be signed in the presence of an agent of the state department of social welfare on a form prescribed by that department.

COLORADO

Annual Clinics.—The University of Colorado School of Medicine and Hospitals will hold its annual clinics, March 23-25. The program calls for special teaching and diagnostic clinics in general surgery, pediatrics, otolaryngology, general medicine, urology, proctology, dermatology, tuberculosis, neurology, obstetrics and gynecology, orthopedics, ophthalmology and psychiatry. Dr. Leonard G. Rowntree, Rochester, Minn., will be the guest speaker, Thursday evening, March 24; his subject will be "Blood Pressure States."

Society News.—Dr. Maurice H. Rees, Denver, was elected president of the Denver Public Health Council, January 12; Dr. Estella F. Warner, Washington, D. C., addressed the meeting on "Child Welfare in Colorado."——Dr. Gerald B. Webb, Colorado Springs, addressed the El Paso County Medical Society, February 10, on "The Prescription of Literature."——The Mesa County Medical Society was addressed, February 16, by Dr. Frank J. McDonough on "Modern Treatment of Burns with Special Reference to Tannic Acid"; Dr. Elliott S. Stong, Grand Junction, "Management of War Hospitals and War Surgery," and Mr. Robert Whipple, "Filtrability of Bacteria."——Among others, Dr. Gerrit Heusinkveld, Denver, addressed the Otero County Medical Society, February 11, in La Junta, on "Management of Difficult Labor."

CONNECTICUT

Dr. Maher Awarded Medal.—Dr. Stephen J. Maher, New Haven, was awarded the Laetare Medal by the University of Notre Dame, South Bend, Ind., March 6. Dr. Maher, who is 71 years old, is the forty-ninth recipient of the award, the New York *Times* states. He graduated from Yale University School of Medicine, and, since 1900, has been actively engaged in the study of tuberculosis. He has been chairman of the Connecticut tuberculosis commission since 1913 and was at one time president of the New England Conference on Tuberculosis.

Change in Wassermann Technic.—The bureau of laboratories, Connecticut State Department of Health, discontinued the use of the plain alcoholic antigen as a routine part of the Wassermann test, February 1, because the plain alcoholic antigen was found less sensitive than the cholesterinized alcoholic antigen in the regular routine, and because research undertaken by the laboratories in 1931 to determine the most practical serologic procedure for its purposes definitely confirmed the routine observations. This problem comprised the serologic examinations of 3,000 specimens by each of five different tests. Furthermore, it was felt that the change would give the laboratory the opportunity to satisfy the demand for an extension of the use of the Kahn precipitation test in conjunction with the Wassermann test.

DELAWARE

Health at Wilmington.—Telegraphic reports to the U. S. Department of Commerce from eighty-three cities with a total population of 36 million, for the week ended March 5, indicate that the highest mortality rate (25.5) appears for Wilmington, and the rate for the group of cities as a whole, 13.4. The mortality rate for Wilmington for the corresponding period last year was 18.6, and for the group of cities, 13.8. The annual rate for eighty-three cities for the nine weeks of 1932 was 12.3, as against a rate of 14.3 for the corresponding period of last year. Caution should be used in the interpretation of weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits, or that they have large Negro populations, may tend to increase the death rate.

FLORIDA

Society News.—Dr. Charles W. Stiles, Washington, D. C., addressed the Orange County Medical Society, January 20, on eradication of hookworm disease.——A symposium on the value of the Mantoux tuberculin reaction in the diagnosis of the childhood type of tuberculosis was presented before a recent meeting of the Columbia County Medical Society by Drs. Louie M. Limbaugh, Thomas M. Palmer and Wilfred M. Shaw, Jacksonville.

GEORGIA

Another "Doctor" Sentenced.—"Dr." Randall Boyd Ramsey is now serving a two year sentence in the U. S. penitentiary Annex, Fort Leavenworth, Kan., for violation of the Harrison Narcotic Act. At Macon, Ramsey procured morphine on forged internal revenue forms stolen from Dr. Henry A. Vann, Boston, Ga. Prior to this time, it is reported, he had been convicted of a violation of the Harrison Narcotic Act at Jacksonville, Fla., and fined $500. On another occasion, he was convicted and fined $50 for a similar violation. Ramsey himself is said to be an addict. He claims to be a practicing physician, stating, it is said, that he received his degree of doctor of medicine from the University of Louisville, Ky., about 1890, and that he practiced in Tennessee and Georgia. Correspondence indicates, however, that the dean of the University of Louisville School of Medicine was unable to find any record that Ramsey ever attended that school. The secretaries of the Tennessee, Georgia, Kentucky and Florida state medical boards have also reported that Ramsey's name does not appear in their records. There is no record in the files of the American Medical Association that this man was ever graduated from a medical school or licensed to practice medicine.

Fischer Prizes Awarded.—Dr. Frank Lee Bivings, Atlanta, was awarded the 1931 L. C. Fischer Prize for research for a paper on "Eczema in Infancy and Childhood—Its Relation to Allergy," and Dr. Mark Stovall Dougherty, Jr., Atlanta, the prize for the best written paper, "Toxic Reactions Produced by the Derivatives of Barbituric Acid." In 1925 Dr. Luther C. Fischer, to stimulate interest in research and to improve medical writing, established the L. C. Fischer prizes to be awarded through the Fulton County Medical Society. Two prizes of $100 each have been available every year. Winners of the awards in previous years are: 1925, both prizes by Dr. Madison Hines Roberts, Atlanta, "Spinal Fluid in the New-Born with Special Reference to Intracranial Hemorrhage"; 1926, both prizes, Dr. Daniel C. Elkin, "Postoperative Atelectasis of the Lung"; 1927, prize for research by Dr. Roberts, "Relations of Pigment Content in the Serum and Spinal Fluid of New-Born Infants"; 1928, no paper considered worthy of either award; 1929, Dr. Launcelot Minor Blackford, for best written paper on "Tetralogy of Fallot"; 1930, Dr. Jack C. Norris, Decatur, prize for research, "A Yeast Pathogenic for Man and Animals (Saccharomyces Pleomorphus-Virulens)," and Dr. John B. Cross, "Fatal Hepatogenic Hypoglycemia Following Neoarsphenamine."

ILLINOIS

Society News.—Dr. Leon Unger, Chicago, addressed the Iroquois County Medical Society at Watseka, February 25, on "Recent Advances in the Treatment of Asthma and Hay Fever."——Dr. Andrew J. Boston, Albion, was elected president of the newly reorganized Edwards County Medical Association, and Dr. Herman L. Schaefer, West Salem, secretary.——Dr. Ellis Fischel, St. Louis, addressed the St. Clair County Medical Society at Belleville, March 2, on "Use of Radium in Malignancy." Dr. Frank J. Tainter, St. Louis, addressed the society, March 3, in East St. Louis on "Problems of Thyroid Surgery."——Dr. William W. Graves, St. Louis, addressed the Madison County Medical Society, March 4, at Alton on "Practical Basis in the Diagnosis of Neurologic Conditions."

Increase in Rabies.—A sharp increase in the prevalence of rabies among dogs has been observed by the state department of public health during the last two months. Positive tests for rabies were made of thirty-nine animal heads, mostly dogs, in the laboratories of the department during January and February of this year, compared with nineteen for the corresponding month of 1931, an increase of more than 100 per cent. There were 197 positive tests made in the laboratories during 1931. Distribution centered in Cook County, Sangamon County and in Jefferson County in a way that almost duplicated the 1926 experience, which marked the beginning of an epidemic wave that reached a peak in 1928, when 1,471 positive tests were made and fourteen human deaths from rabies were recorded.

Chicago

Personal.—The Medical Women's Club of Chicago gave a dinner, February 10, in honor of Dr. Bertha Van Hoosen, head of the department of obstetrics in Loyola University Medical School.

Naprapath Sentenced.—Olive Kendall Harvey, naprapath, was sentenced to one year in the county jail and fined $200 and costs, February 24, for violation of the medical practice act. Among various complaints to the state department of registration are charges that the woman has performed abortions. She has never had a license of any kind in this state, the department reports. In 1927 she was fined $100 on a charge of practicing medicine without a license (The Journal, July 16, 1927, p. 212).

Society News.—At the meeting of the Chicago Gynecological Society, March 18, the speakers were Drs. Pashupati J. Sarma and George De Tarnowsky on ovarian embryoma and Gustav Kolischer, urologic conditions in women.——At a recent meeting Dr. Robert B. Preble was elected president of the Chicago Heart Association and Dr. Sidney Strauss, secretary.——The Chicago Neurological Society was addressed, March 17, among others, by Dr. William F. Lorenz, Madison, Wis., on "Confessions Obtained During Narcosis."——Dr. Leo L. Mayer, among others, addressed the Chicago Ophthalmological Society, March 21, on "Visual Fields, Blind Spots and the Optic Disks in Endocrine Diseases."——The Chicago Society of Allergy will be addressed, March 21, by Drs. Paul R. Cannon and William L. Beecher on "Studies in Tissue Immunity" and "Allergy as a Factor in Ulcers of the Digestive Tract," respectively.

INDIANA

Society News.—Dr. Homer G. Hamer, Indianapolis, addressed the Grant County Medical Society at Marion, February 23, on "Palliative Treatment of Prostatism."——The Fountain-Warren County Medical Society was addressed at Covington, March 3, by Dr. Edward B. Ruschli, La Fayette, on "Diagnosis and Care of Toxic Goiter."——At the March 2 meeting of the Marshall County Medical Society, Dr. Paul R. Irey, Plymouth, spoke on "Treatment of Gonorrhea in Male and Female."

IOWA

Personal.—Dr. Finis C. Suggett, Columbia, Mo., became director of the Des Moines County Health Unit, effective February 1. He succeeded Dr. Carl F. Jordan, who will return to the University of Iowa as assistant professor of hygiene and preventive medicine, it is reported.

Society News.—The Carroll County Medical Society was addressed, January 7, by Drs. Aldis A. Johnson, Council Bluffs, and John C. Parsons, Creston, on "Diagnosis and Treatment of Parasitic Diseases of the Intestinal Tract" and "Mistakes in Diagnosis," respectively.——The Des Moines Academy of Medicine and the Polk County Medical Society were addressed, February 23, by Drs. Francis A. Ely and Elmer E. Kottke on "Acute Infective Polyneuritis" and "Heart Sounds and Their Clinical Significance," respectively.——Dr. Philip B. McLaughlin, Sioux City, was elected president of the Sioux Valley Medical Association at its annual meeting recently, and Dr. William Roscoe Jepson, Sioux City, secretary.

LOUISIANA

Society News.—A symposium on diphtheria immunization comprised the program of the Orleans Parish Medical Society at its meeting, February 22. The speakers were Drs. William H. Robin, Robert A. Strong and John A. Signorelli, New Orleans. Drs. Noka B. Hon, New Orleans, and Ralph L. Lawrence, Washington, D. C., among others, addressed the society at its clinical meeting at the U. S. Marine Hospital, New Orleans, March 14, on "Diathermy in Treatment of Paresis" and "Results in the Treatment of Pernicious Anemia," respectively.——Dr. John H. Musser, New Orleans, addressed the East West Feliciana Bi-Parish Medical Society in Jackson, February 3, on "Some Facts About Nutrition."

MAINE

Society News.—Dr. Joseph W. Scannell, Lewiston, addressed the Androscoggin County Medical Society at Lewiston, February 5, on "The Acute Abdomen."——The Cumberland County Medical Society heard a talk on "Pasteurization of Milk," given by Dr. Milton J. Rosenau, Boston, January 29. ——At the meeting of the Penobscot County Medical Society, February 16, Dr. Ernest M. Daland, Boston, spoke on "Accepted Methods in the Treatment of Cancer."

MARYLAND

Diphtheria Immunization Campaign.—With the endorsement by the Baltimore City Medical Society and the Colored City Medical Society, the city health department has begun a campaign for diphtheria immunization in Baltimore. An effort is being made during March and April to have as many parents as possible take their children to their private physicians for the treatments. Later, clinics will be held to care for those who are unable to afford a physician for the service. Certificates of immunization and circulars for the use of physicians in their practice are now being printed for distribution, April 1.

Increase in Venereal Disease Clinic Attendance.—During 1931 there were 57,043 visits made to the three Baltimore venereal disease dispensaries for examination, treatment and advice. This was an increase of 16,521 over the preceding year. Treatment for syphilis given to white patients numbered 6,832 and to Negroes, 29,487. Gonorrhea treatments totaled 4,539 for white patients and 12,060 for Negroes. There were 128 chancroid treatments given to white patients and 2,870 to Negroes; 2,339 more Wassermann tests were made than during the preceding year. According to the director of the bureau of communicable diseases of Baltimore, this increase is partly explained by present economic conditions. The city clinics are the only clinics where treatment is free and which are open at night.

Dr. Dochez to Give Thayer Lectures.—Dr. Alphonse R. Dochez, professor of medicine, Columbia University College of Physicians and Surgeons, New York, will give the fifth course of lectures under the William Sydney Thayer and Susan Read Thayer Lectureship in clinical medicine at Johns Hopkins Hospital, March 22-23. Dr. Dochez will speak on "A Limited Consideration of Certain Aspects of Acute Infection of the Respiratory Tract." May 16, 1927, a group of friends and admirers of Dr. William Sydney Thayer donated a fund to Johns Hopkins University to endow a lectureship to be known as "The William Sydney Thayer and Susan Read Thayer Lectureship in Clinical Medicine." According to the terms of the gift, the income of this fund is to be used to defray the expenses of one or more annual lectures on subjects in clinical medicine, pediatrics, neurology or borderline branches.

Quarter Century Editions of Medical Annals.—Dr. John Ruhräh, Baltimore, has been appointed by the Medical and Chirurgical Faculty of Maryland to prepare the history of the medical profession in the state for the last twenty-five years. In 1927, Dr. Thomas S. Cullen, in his presidential address, spoke on "Early Medicine in Maryland." Recalling Dr. Eugene Fauntleroy Cordell's book on the "Medical Annals of Maryland," he suggested that the state's medical history be brought up to date. It was decided then, the faculty's bulletin states, that this should be done, if possible, in quarter century editions. The work is now well under way, and divisions have been made covering the growth and development of Maryland's hospitals and medical schools as well as the administration of city and state departments of health. Dr. Ruhräh, as editor of this new history, is being assisted by many collaborators covering the various branches of medicine.

MASSACHUSETTS

License Restored.—The license to practice medicine in Massachusetts of Dr. Irving F. Armstrong, Hudson, was restored to him, March 3. Dr. Armstrong's license had been revoked for conviction on a charge of conspiracy in connection with claims for personal injury in automobile accident insurance cases, the state board of registration reports.

New Administrative Plan.—With the adoption of a new plan of administrative organization the Massachusetts Institute of Technology, March 9, is subdivided into five departments —the School of Science, School of Engineering, School of Architecture, Division of Humanities and the Division of Industrial Cooperation. The School of Science includes biology and public health, chemistry, geology, general science, mathematics and physics. The three schools are the departments in which degrees are given, whereas the two divisions are essentially service divisions, the New York *Times* states. The study of hygiene will be included in the Division of Humanities. The new organization provides for an administrative council, an informal body which will meet weekly for reports of progress in the various departments.

MICHIGAN

Society News.—Dr. George B. Eusterman, Rochester, Minn., addressed the Wayne County Medical Society, Detroit, March 15, on "Incidence and Nature of Gastric Lesions Masquerading as Benign Disease."——Dr. Adolph E. Voegelin, Detroit, recently delivered four lectures on cardiology at the Evangelical Deaconess Hospital.

Examination of Children for Tuberculosis.—An antituberculosis campaign is being carried on in Wayne County during March and April, by representatives of the Wayne County Medical Society, health departments of the county, the Detroit Roentgen Ray Society and the Detroit Tuberculosis Society. Letters are being sent to parents of children in grade and high schools asking them to have each child examined for tuberculosis by the family physician, who will record his observations on a record card enclosed with the letter. Those who do not have a private physician are to be referred to a cooperating physician in their districts. Positive reactors will be carefully examined and a brief history will be taken with particular reference to contacts, all information to be recorded on special forms. They will then be referred for roentgen examination. Roentgenologists have agreed to accept each physician's statement as to the ability of the parent to pay for the service. Parents unable to pay even a part of the cost may be sent to the Herman Kiefer Hospital, where the roentgen examination will be made without charge and a report sent to the referring physician. No charge will be made by physicians if the parents are unable to pay. A charge of one dollar will be made if the child comes to the physician's office for the tuberculin test and the physical examination during the hours specified for the purpose. This arrangement interferes in no way with charging a regular fee for this examination when it is conducted at other hours or on adults and contacts. Tuberculin, forms for recording histories and physical observations, lists of cooperating roentgenologists and technical instruction are to be supplied by the Detroit Department of Health. Contacts are to be followed up and referred to either the family or the cooperating physician.

MINNESOTA

University News.—Dr. Hilding Berglund has resigned as professor of medicine at the University of Minnesota Medical School, Minneapolis, effective June 30, 1933. He will spend the year beginning July 1, 1932, in absentia. Jesse F. McClendon, Ph.D., professor of physiologic chemistry at the university, was to have left about the middle of March to spend a year as visiting professor under the Rockefeller Foundation at the Tohoku Imperial University, Sendai, Japan.

Society News.—At the meeting of the Minnesota Radiological Society in Minneapolis, February 13, the addresses included "Recent Literature on the Classification and Treatment of Bone Tumors" by Dr. William A. O'Brien, and "Cholecystographic Studies on the Emptying of the Human Gallbladder," by Edward A. Boyden, Ph.D.—The Minnesota Academy of Medicine was addressed, March 9, by Drs. Clayton K. Williams, St. Paul, on "Nonspecific Protein Therapy"; William F. Braasch, Rochester, "Recurring Renal Lithiasis of Unusual Type," and Emil S. Geist, Minneapolis, "Knee Fusion."

MISSOURI

Hospital News.—An endowment of $250,000 has been given to St. Luke's Hospital, Kansas City, by Mrs. Herbert F. Hall. The income will be used to pay part or all of the hospital expenses in selected cases, to relieve in part or entirely the burden of the expense of illness which requires hospital care for families with a budget of from $2,000 to $3,000. An operating room at the hospital was recently dedicated to the memory of Dr. Herbert G. Trueman who died in 1928. The room was given to the hospital by Mrs. Trueman.

Medical School Committee Appointed.—Dr. Albert J. Welch, Kansas City, president of the Jackson County Medical Society, recently appointed a committee to act in the interest of procuring for Kansas City the last two years of medical instruction for students at the University of Missouri. The committee includes Drs. Edwin Lee Miller, Buford G. Hamilton, Minford A. Hanna, Jabez N. Jackson and Edward P. Heller. In 1930 the reestablishment of the clinical years at the University of Missouri, Columbia, was authorized. They had been discontinued in 1909 (The Journal, Oct. 18, 1930, p. 1185).

Society News.—Dr. Hugh Cabot, Rochester, Minn., among others assisting in the hospital clinic of the Kansas City Southwest Clinical Society, March 8, spoke on "The Management of Cancer of the Prostate." He also addressed the Jackson County Medical Society in the evening on "Place of Nephrostomy in the Treatment of Kidney Lesions." Drs. Nelse F. Ockerblad and Ernest G. Mark spoke on "Correction of Vesical Neck Obstructions by Means of the Resectoscope" and "An Attempt to Evaluate Transurethral Prostatectomy in Bladder Neck Obstructions," respectively.——At the meeting of the St. Louis Medical Society, February 23, Dr. Horace W. Soper spoke on "Diagnosis of Carcinoma of Colon," and Dr. John W. Thompson, Jr., talked on "Surgical Treatment of Carcinoma of Colon with Report of Forty-Five Cases." The society was addressed, February 16, by Drs. Lawrence Schlenker on "Pneumothorax as a Home Treatment"; Wilbur K. Mueller, "Spontaneous Pneumothorax," and Edgar W. Spinzig, "Massive Collapse (Atelectasis) of the Lung." Clinical cases were presented at the meeting of the St. Louis society, March 1. A brief summary of the life of the late Dr. Theodore F. Prewitt was also read at this meeting, as a centennial tribute. Dr. John C. Meakins, Montreal, Canada, addressed the society, March 8, on "Bronchial Carcinoma."——At the meeting of the Jackson County Medical Society, March 15, the speakers were Drs. David S. Dann, Kansas City, on "X-Ray Examination of the Spine"; Frank D. Dickson, Kansas City, "Shelf Operation for the Correction of Congenital Hip Disease," and Samuel A. Grantham, Joplin, "Spinal Fusion by the Tunneling Method."

NEW YORK

Report on Workmen's Compensation Laws.—A committee appointed by Governor Roosevelt to review problems connected with workmen's compensation insurance, has presented a report of its studies during the year. The subcommittee on hospital problems, of which Dr. Sigismund S. Goldwater is chairman, made the following recommendations: that hospitals be adequately paid for service in compensation cases without regard to the "ward charity" rate; that authorization by the employer for payment of hospital charges should not be required; that a law be enacted giving a hospital liens on judgments awarded to patients in damage suits, and that hospitals be advised within a definite time whether cases are to be contested. The subcommittee on medical problems, of which Dr. Adrian V. S. Lambert is chairman, recommended that all occupational diseases be included in the provisions of the workmen's compensation act; that insurance company physicians be excluded from physical examinations of claimants; that the practice of "lifting" (defined as the practice on the part of insurance agents of inducing compensation claimants to change medical attendants by means of threats or offers of a pecuniary nature) be prohibited, under penalty of forfeiture to the state of a sum ranging from $50 to $150. The committee on medical problems further expressed the opinion that the maintenance of clinics by insurance companies is unsatisfactory and suggested that a series of clinics be created under supervision and direction of the state. Two members representing insurance companies dissented from the foregoing opinion. The committee also recommended that total disability be interpreted to mean that the injured person is unable to return to his occupation and should be compensated until he can resume it, with the exception that any earnings from light work in the meantime be deducted from compensation. Although present conditions are unsatisfactory, they do not warrant free choice of physicians by patients, the committee believed. Finally, the committee suggested the formation of a "supreme court of review" made up of seventy-five unbiased experts from which committees could be drawn to solve certain highly specialized medical problems. A third committee on departmental procedure, headed by Mr. Max Meyer, recommended, among other things, creation of a bureau to which a claimant might go for impartial checkup on his treatment; provision of suitable examination rooms in every city and recognition of the principle that a man injured while working should not become a burden to society because his employer is not insured. Suggested bills to be submitted to the legislature were presented to the governor covering (1) elimination of authorization by employers, (2) the right of hospitals to adequate remuneration and (3) elimination of right of carriers or employees to be represented at physical examinations of injured persons. Howard S. Cullman, New York, is chairman of the governor's committee.

New York City

Study of Incipient Tuberculosis in Children.—The Queensboro Tuberculosis and Health Association is directing a three-year study of tuberculosis in 22,000 school children of the borough of Queens, it was recently announced. Roentgenograms are being made of all the children's chests and it is planned to repeat the examination next year and the next, thus making available three consecutive films for each child. The board of education, the city health department, Bellevue Hospital, Nassau County Hospital and the medical department of the New York Telephone Company are cooperating in the study, according to the report.

Hospital News.—A new $125,000 hospital building at Mitchell Field, L. I., was occupied, February 20, replacing an old structure. It has a capacity of twenty-five beds and a specially equipped optical room for eye examinations of pilots. ——The Veterans Administration Hospital in the Bronx is in process of conversion from a hospital for nervous and mental patients to a general hospital. Neuropsychiatric patients have been transferred to hospitals at Northport, L. I., and Reliance, N. J. Because of an increase in the number of patients requiring general treatment, it was found necessary to make provision for them in New York City. Such cases have heretofore been cared for at the naval hospital in Brooklyn.

Milbank Fund Council Meeting.—At a meeting of the advisory council of the Milbank Memorial Fund, March 16-17, Dr. William H. Welch, Baltimore, resigned as chairman of the council, a position he had held since its organization in 1922. Dr. Livingston Farrand, Ithaca, was chosen to succeed him. The council met in groups, in which discussions were held on health centers, health education and tuberculosis in children, population studies and public health nursing. Among speakers were Drs. William H. Park, Shirley W. Wynne and James Alexander Miller, New York; Thomas Parran, Jr., Albany, and Raymond Pearl, Ph.D., Baltimore. Dr. Hsun-Yuan Yao described the fund's health demonstration in Ting Hsien, China (The Journal, Sept. 5, 1931, p. 714). Discussions on economics of medicine and health were presented by the following speakers, among others: Dr. Ray Lyman Wilbur, Washington, D. C.; Louis I. Dublin, Ph.D., New York, and Charles-Edward A. Winslow, Dr.P.H., New Haven, Conn.

OHIO

Graduate Course in Physiology.—Dr. Anton J. Carlson, professor of physiology, University of Chicago, will conduct the tenth annual graduate course sponsored by the Toledo Academy of Medicine, March 21-25, on recent advances in physiology. Dr. Carlson will give two lectures each day, covering, among other subjects, the anemias, control of the heart, control of blood pressure, oxygen therapy, the digestive secretions, motor mechanisms of the alimentary tract, dietary deficiencies, the endocrine glands and renal function.

Society News.—Drs. Cyrus C. Sturgis, Ann Arbor, Mich., and Marion A. Blankenhorn, Cleveland, addressed the Cleveland Academy of Medicine, March 18, on "The Outlook of the Patient with Pernicious Anemia" and "Neurological Aspects of Pernicious Anemia," respectively.——The Cleveland Neurological Society was organized, February 4, with Dr. Siegfried Baumoel as chairman and Dr. William James Gardner as secretary.——Dr. Henry D. Chadwick, Detroit, addressed a joint meeting of the medical section of the Toledo Academy of Medicine and the Toledo Public Health Association, March 18, on "The Childhood Type of Tuberculosis." This meeting celebrated the fiftieth anniversary of Koch's discovery of the tubercle bacillus, March 24, 1882.

PENNSYLVANIA

Governor Vetoes Hospital Bill.—Governor Pinchot recently vetoed a $2,000,000 hospital aid bill passed by the special session of the legislature. The governor said he could not approve the measure because it did not provide revenue for the appropriation and because in his opinion the basis of distribution had no relation to the requirements of the individual hospitals. The bill apportioned the fund among the state's hospitals on the basis of 27 per cent of the 1931 appropriation.

Society News.—Dr. William W. G. MacLachlan, Pittsburgh, addressed the Mercer County Medical Society, February 17, on pneumonia.——Dr. Adam C. Williamson, Pittsburgh, addressed the Fayette County Medical Society, Uniontown, March 3, on "Management of Occiput Positions."——Speakers at the meeting of the Pittsburgh Academy of Medicine, March 8, were Drs. Charles H. Henninger, on "Borderline Mental States"; David Silver, "Bone Setting and Allied Cults," and Andrew Wallhauser, "Treatment of Hodgkin's Disease."——At a meeting of the Cambria County Medical Society, Johnstown, March 10, Dr. Frederick M. Allen, Morristown, N. J., spoke on "Diet and Other Measures in Treatment of Nephritis" and Drs. Bernard J. McCloskey, Joseph P. Replogle and John W. Barr presented a review of research and study in medicine, surgery and [illegible] tively.——John J. Moffitt, D.D.S., addres[illegible] Academy of Medicine, February 16, on [illegible] Abscessed Tooth."

Philadelphia

Hospital News.—The Jeanes Hospital instituted a radium service recently with the completion of an emanation plant and the purchase of 1 Gm. of radium. Another gram of radium is on order and will be delivered shortly, according to the medical director.——The merger of the West Philadelphia Hospital for Women with the Woman's Hospital of Philadelphia, announced in 1928, was consummated, February 16, when the personnel of the former institution was moved to the new $530,000 building of the latter in West Philadelphia.

Founder's Day Celebration.—The one hundred and eleventh anniversary of the founding of the Philadelphia College of Pharmacy and Science was celebrated, February 23. C. Leonard O'Connell, Pharm.D., of the University of Pittsburgh College of Pharmacy, made an address on education of the pharmacist. H. K. Mulford presented to the college the fifth of a series of mural paintings depicting the progress of pharmacy. The honorary degree of master of pharmacy, honoris causa, was conferred on Dr. O'Connell.

Hospital Deficits.—Private hospitals in Philadelphia incurred a deficit in 1931 of $726,440, it was revealed at a meeting of the subscribers to the Welfare Federation, February 29. Dr. J. Norman Henry, director of public health, stated that public hospitals are overcrowded; the Philadelphia Hospital for Mental Diseases, for example, has 5,100 patients, when it is equipped to care for only about 3,000. In pleas for further aid for private hospitals, it was pointed out that large numbers of persons who were formerly pay or part-pay patients are now forced to become charity patients.

Society News.—Dr. Rosco G. Leland, Chicago, will address the Philadelphia County Medical Society, March 23, on "Trends in Medical Economics" and Dr. George P. Muller, on "The Public and the Medical Profession."——The meeting of the Philadelphia Neurological Society, March 18, was dedicated to the memory of Dr. Charles K. Mills, one of the founders. The following speakers discussed various phases of the career of Dr. Mills and his relation to the society: Drs. William G. Spiller, Charles W. Burr, James W. McConnell, Williams B. Cadwalader, Charles H. Frazier, Theodore H. Weisenburg and James Hendrie Lloyd.——Dr. John Alexander, Ann Arbor, Mich., gave a lecture, March 18, under the auspices of the D. Hayes Agnew Surgical Society, on "The Widening Scope of Thoracic Surgery."

TENNESSEE

Society News.—Dr. John Howard King addressed the Nashville Academy of Medicine, February 23, on acne. Dr. Thomas A. Mitchell spoke, March 1, on "Symptoms Due to Impairment of Kidney Function and Acidosis," and Dr. Fred W. Rankin, Rochester, Minn., March 8, on "Encouragement in Dealing with Colonic Malignancies."——Dr. Harold M. Bowcock, Atlanta, Ga., addressed the Hamilton County Medical Society, Chattanooga, February 11, on "Newer Considerations in the Treatment of Diabetes Mellitus." Drs. Stewart Lawwill and James D. L. McPheeters, Chattanooga, spoke, February 18, on sinus diseases.——Drs. Samuel T. Ross and Edwin A. Sayers, Nashville, among others, addressed the Hardin-Lawrence-Lewis-Perry-Wayne Counties Medical Society, January 26, on "Surgical Treatment of Cirrhosis of the Liver with Ascites" and "Diagnosis and Treatment of Fractures of the Skull," respectively.——Dr. James A. Price, Memphis, was elected president of the Tennessee Tuberculosis Association at the recent annual meeting in Nashville.——Drs. Richard A. Barr and Jefferson C. Pennington, Nashville, addressed the Giles County Medical Society, Pulaski, January 28, on appendicitis and surgery of the neck of the bladder, respectively.——Drs. Morton J. Tendler and Thomas D. Moore, Memphis, addressed the Memphis and Shelby County Medical Society, January 19, on "Pilonidal Sinus" and "Instrumental Correction of Prostatic Obstruction," respectively.——Dr. H. C. Long addressed the Knox County Medical Society, Knoxville, March 1, on cardiac arrhythmia. Dr. Philip C. Thomas, Knoxville, addressed the society, March 8, on "Placenta Praevia."

Dr. [illegible] Library
[illegible] Medical College

TEXAS

Spring Clinical Conference.—The fourth annual spring clinical conference sponsored by the Dallas Southern Clinical Society will be held, March 28-April 2, in Dallas, with headquarters at the Baker Hotel. There will be addresses by guest speakers each morning and evening and round table luncheons each day at noon, while the afternoons will be devoted to clinics at various hospitals and to a series of graduate lectures. At the opening meeting, March 28, Dr. Edward H. Cary, Dallas, President-Elect, American Medical Association, will make an address of welcome and the following physicians will speak: Drs. Thomas R. Brown, Baltimore, on "The Story of Digestion —and Indigestion"; Frank H. Lahey, Boston, "The Thyroid Gland," and Karl A. Menninger, Topeka, Kan., "Suicide: Its Meaning and Its Prevention." Among other guest speakers listed for the week are Drs. Herman L. Kretschmer, Chicago, "Treatment of Pyelitis"; Samuel A. Levine, Boston, "Bedside Recognition of Irregularities of the Heart"; Merrill C. Sosman, Boston, "Roentgenological Observations on the Cure of Gastric and Duodenal Ulcers"; Williams McKim Marriott, St. Louis, "Practical Points in the Care and Feeding of Infants"; Lee Wallace Dean, St. Louis, "Relationship Between Infections of the Upper Respiratory Tract and Pediatric Conditions"; Udo J. Wile, Ann Arbor, Mich., "Skin Manifestations of Systemic Disease"; John Shelton Horsley, Richmond, Va., "Diagnosis and Treatment of Cancer of the Colon"; William O'Neill Sherman, Pittsburgh, "Surgery of Trauma"; Carl A. Hedblom, Chicago, "Treatment of Empyema"; Paul Titus, Pittsburgh, "Toxemias of Pregnancy"; Edward H. Richardson, Baltimore, "Interpretation of Abnormal Uterine Bleeding"; John A. Kolmer, Philadelphia, "Present Status of Vaccine and Nonspecific Protein Therapy"; Joseph C. Beck, Chicago, "Neoplasms About the Head and Neck"; Dudley A. Smith, San Francisco, "Cancer of the Rectum," and Albert H. Rowe, Oakland, Calif., "Food Allergy." In addition, there will be symposiums on disease of the biliary tract, conservation of maternal health and arthritis. The annual clinic dinner and alumni reunion will be held, Wednesday evening, March 30. Both scientific and technical exhibits will be on view.

WISCONSIN

Society News.—Drs. Harry J. Fortin and Albert M. Snell, Rochester, Minn., addressed the Rock County Medical Society, Beloit, February 23, on "Arthritis and Its Treatment" and "Diagnosis and Treatment of Peptic Ulcer," respectively.——Drs. Forrester Raine, Milwaukee, and Leon Bloch, Chicago, addressed the Racine County Medical Society, February 17, on "Intestinal Obstruction" and "Genito-Urinary Conditions Simulating Gastro-Intestinal Diseases," respectively.——At a joint meeting of the Menominee and Marinette-Florence county medical societies, Menominee, February 18, Drs. Lloyd E. Hamlin, Norway, and Moses Cooperstock, Marquette, spoke on "Treatment of Burns" and "Advances in Treatment of Childhood Conditions," respectively.

Chapel and Library Given to Hospital.—Dedication ceremonies were held, February 21, for a chapel and a library which have been given to St. Luke's Hospital, Racine, by Dr. John G. Meachem, Jr. The chapel is a memorial to Dr. Meachem's wife, and the library to three generations of his family who have been physicians. The chapel seats fifty persons. The library contains more than 1,500 volumes. It also provides a meeting place for physicians and will probably be used by the Racine County Medical Society for its monthly meetings. Dr. Meachem, who is 86 years old, has practiced medicine for sixty-seven years. He was for many years a member of the municipal health board of Racine. With his father, Dr. John G. Meachem, Sr., he was one of the incorporators of St. Luke's hospital. His son, Dr. John G. Meachem III, who died in 1926, left the hospital an endowment of $180,000.

GENERAL

Education of the Handicapped.—Miss Beatrice McLeod, former state director of special education in Wyoming, has been appointed specialist in the education of physically handicapped children in the Office of Education, U. S. Department of the Interior. She will report work being done on behalf of all children with physical handicaps, cooperate with agencies and school officials, assist in surveys, and conduct studies to aid in the promotion of special treatment and training. Miss McLeod is a graduate of the University of Oregon and has been connected with the department of child study in Seattle and the department of psychology and educational research in Los Angeles. Her appointment marks an expansion of the activities of the office of education.

Dental Association Adopts Publicity Program.—The board of trustees of the American Dental Association, at a meeting in Chicago, January 18, approved plans for an organized program of educational publicity, submitted by a committee appointed previously. Three methods were contemplated in the report. "Educational messages," prepared either by the committee or by local dental societies with the committee's approval, will be presented through newspapers and other mediums to the public. A publicity director is to be appointed to prepare copy under supervision of the committee. The third feature of the plan is the use of the radio for dissemination of oral, dental and general health topics, the subject matter to be approved by a special committee.

National Negro Health Week.—The eighteenth annual observance of National Negro Health Week will be held, April 3-10. This movement was started in 1915 by Booker T. Washington as a National Health Improvement Week. When the U. S. Public Health Service assumed an active interest in the promotion of National Negro Health Week in 1921, plans were made for developing it into a year-round program for the improvement of the health of the colored population. The program for 1932 emphasizes practical health measures such as clinics, clean-up activities, and efforts to secure permanent health improvements and full time colored health workers. It is being arranged by the annual Tuskegee conference and other Negro organizations in cooperation with the U. S. Public Health Service.

Another Four Weeks of Automobile Fatalities.—The U. S. Department of Commerce announces that during the four weeks ended February 20, eighty-three large cities in the United States reported 604 deaths from automobile accidents as compared with 618 deaths during the four weeks ended Feb. 21, 1931. Most of these deaths were the result of accidents which occurred within the corporate limits of the city, although some accidents occurred outside the city limits. Considered by four week periods since January, 1929, total deaths from automobile accidents, whether within the city limits or outside, the lowest total (472) appears for the four-week period ended Feb. 23, 1929, and the highest (867) for the four week period ended Jan. 23, 1932. For the fifty-two week periods ended Feb. 20, 1932, and Feb. 21, 1931, the totals for all the cities were, respectively, 9,127 and 8,968, which indicate a recent rate of 25.5 per hundred thousand of population, as against an earlier rate of 25.6.

Medical Bills in Congress.—*Changes in Status:* S. 1975 has passed the Senate, amending an act entitled "An Act to recognize the high public service rendered by Major Walter Reed and those associated with him in the discovery of the cause and means of transmission of yellow fever" by including Dr. Roger P. Ames among those honored by the act. S. J. Res. 65 has been indefinitely postponed by the Senate, proposing to extend the provisions of the World War Veterans' Act relating to hospitalization for nonservice disabilities to include any veteran who was honorably discharged from any term of service during the war, whether or not a subsequent period of service was terminated dishonorably. *Bills Introduced:* H. R. 10202, by Representative Shannon, Missouri, to authorize the purchase of the hospital leased by the Veterans' Administration at Kansas City, Mo. H. R. 10238, by Representative Leavitt, Montana, to create a reimbursable fund to be used for special medical and surgical work among the Indians of the Fort Peck Indian Reservation, Montana.

Society News.—The fifty-ninth annual meeting of the Northern Tri-State Medical Association (Ohio, Indiana and Michigan) will be held in Toledo, Ohio, April 12. Clinics will be conducted by Drs. Ora O. Fordyce and Newton W. Kaiser, Toledo, in psychiatry; Edward P. Gillette, Toledo, orthopedic surgery, and Udo J. Wile, Ann Arbor, Mich., dermatology. Among others, Drs. Stanley P. Reimann, Philadelphia, will speak on "Sulphydril—The Basis for Further Cell Division," and Dr. Dean Lewis, Baltimore, will speak at the annual banquet on "Lesions of Bone and Their Treatment."——Dr. Emmet Rixford, San Francisco, was elected president of the Pacific Coast Surgical Association at its annual meeting in Santa Barbara, February 25-27; Drs. Wayland A. Morrison, Los Angeles, and William B. Holden, Portland, Ore., were elected vice presidents, and Dr. Edgar L. Gilcreest, San Francisco, was reelected secretary. The eighth annual meeting of the association will be held at Del Monte, Calif., Feb. 24-26, 1933. Preceding this meeting, there will be two days of clinics in San Francisco.

Decrease in Consumption of Medicinal Whisky.—During the past year there has been a reduction of 14 per cent in the distribution and use of medicinal whisky, according to a recent statement of James M. Doran, commissioner of industrial alcohol, before a subcommittee of the committee on appropriations of the House of Representatives at Washington. In 1931, the amount of medicinal liquor consumed was 1,201,000 gallons, as compared with 1,405,000 gallons in 1930. During the month of January, 1932, the consumption amounted to 107,768 gallons, in comparison with 143,642 gallons in January, 1931. The commissioner attributed the reduction to the higher price of medicinal spirits. "Medicinal whisky has gone up in price by reason of the increased carrying cost that follows from year to year and as it steadily evaporates each year and the interest and carrying charges and insurance continue to pile up, it tends to force the price up," he explained. Although more physicians have permits than during previous years, the number of prescriptions per physician seems to be less and the gross volume is less, according to the commissioner's statement.

FOREIGN

Memorial to Andrew Balfour. — Friends and associates of the late Sir Andrew Balfour have decided to found a memorial to him and are asking his friends all over the world to contribute. When funds are available it is proposed to erect a simple memorial to him at the London School of Hygiene and Tropical Medicine, of which he was the first director, and with the remainder of the amount received to establish the Andrew Balfour Memorial Fund to help students to study at the school. Contributions should be sent to the Honorary Treasurer, Andrew Balfour Memorial Fund, London School for Tropical Medicine and Hygiene, Keppel Street, London, W. C. 1. Balfour died in January, 1931.

Course in Individual Psychology.—Dr. Alfred Adler is to be the director of a special three weeks' course in individual psychology, which will be given, June 20-July 10, at Semmering, near Vienna. Courses announced include: medical psychology; principles of individual psychology; problems in mental life; understanding human nature; training for the three tasks of life, social intercourse, profession and love and marriage; individual psychology and the school and what teachers, social workers and consultants should know of medicine. The main courses will be given during the first two weeks, and the third week will be devoted to special branches. Dr. Adler, Dr. Francis G. Crookshank, London, England, and Dr. Leonhard Seif, Munich, will be among the instructors. Application should be made before April 1. Inquiries may be addressed to Mrs. Sofie Lazarsfeld, Seilergasse 16, Vienna 1.

Society News.—Dr. John D. Rolleston gave the first of the twentieth series of Chadwick Lectures, February 18, at the Medical Society of London, on "Benjamin Ward Richardson, His Life and Work."——Mr. W. R. Bett addressed the Osler Club of London, January 22, on Viktor Hensen, who discovered in 1856 the glycogenic function of the liver independently of Claude Bernard. Prof. Leonard Findlay addressed the club, February 19, on the history of rickets.——An International Congress on Asthma will be held in Paris, June 4-5. Dr. Warfield T. Longcope, Baltimore, will represent the United States on the program. Information may be obtained from the secretary-general, Dr. Jean Galup, 19 Rue Auber, Paris. A second series of conferences on military medicine is to be held, June 23-25, in Liége, Belgium, under the auspices of the Office International de Documentation de Médecine Militaire. All medical officers of the land, sea and air forces are invited to attend. Lieut.-Col. Médecin Jules Voncken, Hôpital Militaire Liége, is in charge of registration.

International Congress for Light.—The second International Congress for Light will be held in Copenhagen, August 15-18. The subjects to be discussed are: the rôle of pigment in light biology, with Dr. Brody of France and Prof. Miescher of Switzerland as principal speakers; the systematic action of light in tuberculosis, with Sir Henry J. Gauvain, England, and Prof. Jesionek, Germany, speakers; and heliotherapeutic and climatologic research in relation to public health, with Prof. Walter Hausmann, Austria, and Prof. August Rollier, Leysin, Switzerland. Papers on other subjects to be read by members must be communicated to the secretary-general before April 1. Any member wishing to read a paper is requested to send a short summary in English, French or German to the secretary-general before May 1. The president of the congress is Dr. Axel Reyn, Copenhagen, and the chairman of the American committee is Dr. Alfred Hess, New York. In addition to Dr. Hess, William W. Coblentz, Ph.D., of the Bureau of Standards, Washington, D. C., and Ellsworth Huntington, Ph.D., Yale University, New Haven, will be among the speakers. The secretary-general is Dr. A. Kissmeyer, Finsen Institute, Strand Boulevard, Copenhagen.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Feb. 13, 1932.

The Control of Cerebrospinal Fever

The ministry of health has issued a report that reviews the present knowledge of cerebrospinal fever. During the past year there has been a definite increase of the disease in England and Wales. Though outbreaks described by Sydenham and others were probably due to the disease, its recognition is usually attributed to Vieusseaux of Geneva, who described an outbreak in 1805. Danielson and Mason recorded one in Massachusetts in 1806. Many epidemics have been described since, chiefly in Europe and North America, military camps and barracks being particularly affected. Excepting small outbreaks in London and Rochester in 1865 and in Bardney in 1867, England and Wales was comparatively free until the beginning of the present century. Limited outbreaks in country districts were followed in 1907 and 1908 by 1,238 cases in Glasgow, with 838 deaths, and at the same time 725 cases occurred in Belfast. In the years preceding the war the annual number of cases among civilians in England and Wales varied from 200 to 300. But in the war year of 1915-1917 the numbers were respectively 2,566, 1,306 and 1,465. Following demobilization the numbers fell year by year, until the antebellum level was attained in 1923. Since then there has been a gradual increase, which has also been observed in other countries of Europe. The increased prevalence among civilians during the war years coincided with the 4,238 cases and 1,928 deaths in the army at home in 1914-1918. In England, cases occur all the year round, but the greatest incidence is in the winter and spring. The heavier incidence in rural than in urban districts, described in the United States, has not been observed. The majority of cases occur among children under 5.

The means of control consist first in compulsory notification and provision of means of bacteriologic diagnosis by the ministry of health. If isolation and the best available treatment cannot be obtained at home, hospital treatment is to be at once offered. The closest and most accurate observation on the efficiency of the serums in use is considered desirable. As one hospital rarely has sufficient cases for investigation, the ministry is collecting all the evidence as to the results of serum treatment, both as to methods of administration and as to the nature of the serum used. The cooperation of health officers, hospital medical officers and physicians is invited, and blanks for this purpose are supplied by the ministry on application.

Malformations of the Perineum

At the Royal College of Surgeons, Sir Arthur Keith devoted his final lecture on "Malformations of the Human Body Considered from a New Point of View" to the perineum. He pointed out that in the latter half of the second month transformations are being effected at both ends of the alimentary tract. The mouth is being separated from the nasal cavity by growth of the palatal septums, separating the breath-way and the food-way. At the same period the cloaca is being transformed so as to give the bowel a passage separate from that for the kidneys and genital glands. All these developmental operations involve processes akin to the healing of wounds. If they fail, the aid of the surgeon becomes necessary. A palateless fetus, with persistent cloaca, reverts to a condition that prevailed in the highest vertebrates 250 million years ago and still exists in the amphibia. About a hundred million years later, reptile-like creatures in South Africa were assuming mammalian palates and presumably similar changes were occurring at the other end of their bodies. In the human fetus of the fifth week, when the wolffian body still serves as a kidney, the rectum and bladder join together high above the point at which the wolffian duct (vas deferens) terminates in the common cloacal passage. A few days later the renal (or ureteral) bud has sprung from the wolffian duct and the termination of the rectum has moved down on the common passage, so that it ends level with the termination of the wolffian duct. Before the end of the seventh week it has reached the site of the prostate and by the eighth week it has reached and fused with the cloacal membrane. It is usual to describe the separation of the rectum from the urogenital system as due to septal formation. But the terminal part of the developmental rectum is enveloped by a mass of rapidly growing embryonic tissue; the whole forms a migrating mass which carries the rectum along the cloaca until the surface of the perineum is reached. There is a mass movement of tissue of exactly the same nature as that which brings about the migration of the testis. The cloaca is not cleft; it passes into the service of the kidneys and genital glands.

The rectum may be arrested at any point of its three weeks' migration. It may open high in the bladder, but usually, if the cloacal anus persists, it opens into the prostatic urethra of the male or vulval cleft of the female, just below the hymen. Or it may cut its connection with the cloaca at any point in its descent and cease to grow. Hence it may terminate at any point between the rectovesical pouch and the perineum. The external anal depression may be formed or not. The better it is demarcated, the better the hope of finding the rectum low in the pelvis.

The migration of the rectum in the ancestry of mammals must have been as it occurs in man during the sixth to the eighth weeks of fetal development. The mechanism may be unknown, but the movement was connected with reproduction. With the appearance of reptiles took place a revolution in the methods of producing young. Long oviducts came into being, along which had to pass yolk-laden fertilized eggs, and there had to be intromission of spermatozoa within the cloaca. The lips of the cloaca underwent changes which helped to make the cloaca of the male serve as the intromittent organ. In early mammals the cloaca became, in the phraseology of Wood Jones, an intracloacal or implicate penis and then an external or explicate penis. In the lowest mammals—the monotremes—this change can be seen taking place. Clearly the passage for semen and urine could not serve the needs of the alimentary tract. Of the inner workings of the developmental movements there is no certain knowledge, but it can be surmised that they are brought about by growth-controlling substances formed in the developing genital glands. Dependence on them may be inferred from what happens as soon as the permanent anus is established. In the female the cloacal margins become the boundaries of the vulval cleft; the cloaca remains open, giving exit to bladder and vagina. In the male the margins of the cloacal orifice begin to unite at the margin of the anus to form the floor of the urethra. But if the testis is imperfectly developed this union fails at various stages, and hypospadias is produced.

Eliminating Street Noises

The injurious effects of noise, which was recently discussed in an editorial comment in The Journal, has also received attention in this country. The designing of a window to exclude, as far as possible, the noises of the street does not seem to have occurred to American builders. Mr. E. T. Fisk, managing director of Amalgamated Wireless (Australasia), Ltd., has designed a new type of window which, he asserts, has an efficiency of 75 per cent or over in deflecting street noises. A number of these windows have been fitted to offices and broadcasting studios in Sydney and Melbourne. The device has been scientifically tested in Britain. Light and air are not obstructed, but rain and dust are excluded. The window consists of a main frame into which are built subpanels or louvers, which can be turned outward at any angle required in any particular thoroughfare to deflect the noise. Inside the window are a number of sunblinds fitted on the louver principle, and the casement of the window is lined with fiber to absorb as much as possible of the remaining volume of sound that is able to get through the panels. For less sunny climates it is suggested that slips of glass on the louver principle could replace the inner sunblinds, used in the Australian tests, and would admit more light.

Illicit Drug Traffic

The Egyptian government's narcotics central bureau, in its report for 1931, shows that Turkey appears to have become an important center of illicit traffic, though the Turkish government is taking steps to deal with the matter. In Greece, again, traffickers are aided by the absence of provisions for the preventive arrest and detention of persons accused. Unfavorable comment is made on the number of cases in which members of Lloyd Triestino steamers figure as traffickers' agents. The most striking fact of the report is that whereas the number of drug addicts in Egypt decreased considerably last year, the number of traffickers increased. These effects seem to be due to one cause. There appears to be an increasing adulteration of the drugs, which increases the profits of the traffic and attracts more persons into it. On the other hand, the number of addicts is diminished, for they find that they can no longer afford to pay for the amount of drug necessary for the desired reaction. In 1930, 2,828 traffickers and 4,580 addicts were arrested; in 1931 the numbers were 4,327 and 2,882. The big development of the trade is shown by the amounts seized by the Egyptian customs and frontier guards; there was a total of more than 4,000 kilograms, while 11,649 kilograms was seized inside the country. It was found that 57 per cent of the addicts spent more than half their daily wage on drugs. A curiosity of the report is the instance of a Cairo contractor who paid his laborers in diacetylmorphine instead of money.

PARIS

(From Our Regular Correspondent)

Jan. 27, 1932.

The Reflection of Ultraviolet Rays by Mirrors

J. Cluzet and T. Kofman, in a communication presented to the Société de biologie of Lyons, showed by means of the cadmium photo-electric cell that ultraviolet rays under 3,000 angstroms behave with metallic mirrors exactly like ordinary light. The slight differences in the frankness of the images produced by these mirrors correspond to important differences in the quantity of ultraviolet rays reflected. Glass mirrors, whether backed with a silver coating or not, are much inferior as reflectors of ultraviolet rays to metallic mirrors. With a glass 1 mm. thick, only the anterior surface reflects ultraviolet rays, all that part of the cone of rays that penetrates the glass being entirely absorbed. From two points of view, these results are applicable to actinotherapy. It would be advisable, in order to improve considerably the output of ultraviolet ray apparatus, to employ as reflectors genuine metallic mirrors in place of plates of aluminum insufficiently polished. Likewise, the laryngoscopic mirrors used for actinic treatment of tuberculous laryngitis should be as aplanatic as possible—made of nickel or steel but not of glass, since glass absorbs nearly all the ultraviolet rays that fall on it.

Technic of Parathyroidectomy

Professor Leriche, surgeon of Strasbourg, has made a special study of parathyroidectomy in diseases associated with hypercalcemia. In a recent article in the *Gazette des hôpitaux*, he gives the details of his surgical technic. He has performed this operation fifteen times—three times for polyarthritis, twice for Recklinghausen's disease, six times for scleroderma, once for spontaneous keloid, once for painful tumor of the spine, twice for circulatory disorders. No deaths or complications resulted. He always obtained a frank diminution of the hypercalcemia, amounting to one fourth or even one third. Leriche gives minute details of the technic he developed which is necessary to secure a good result; for, while the parathyroid is sometimes easy to find when located between the branches of the inferior thyroid artery, near their bifurcation, it is sometimes situated higher, or is even hidden by the capsule of the thyroid gland. The surgeon sometimes perceives, after the operation and the histologic examination, that he has removed only a lump of fat. Mr. Leriche advises, when the gland is not visible, being too high or concealed, to place a double ligature on the inferior thyroid artery and to dissect out a strip of thyroid tissue in which the gland will be included. The simple ligature of the thyroid artery often suffices to cause ischemia and to improve the hypercalcemia. But the results are more certain when one performs the two operations: the arterial ligature and the removal of the gland. The question as to whether it is sufficient to remove the parathyroid on one side alone is left open by Leriche. He does not think that double excision is useful except in serious cases of Recklinghausen's disease, in polyarthritis with ankylosis of long standing, and in advanced sclerodermas.

The Antituberculosis Dispensaries

The report published by Mr. Marcel Moine, in charge of the statistical service of the Comité national de défense contre la tuberculose, contains facts concerning the activity of the dispensaries in 1930 and the mortality from tuberculosis in France. The report shows that the number of dispensaries continues to increase, but that, at the same time, their work increases from year to year. This activity is expressed by 86,400 consultations, during which 1,088,875 examinations, some clinical and some radiologic, were made; 611,815 consulting patients were admitted in 1930, 251,867 of whom were tuberculous, while 160,091 bacteriologic examinations were performed in the laboratories that collaborate with the antituberculosis organizations; 61,107 patients have been admitted to the institutions for prophylaxis and treatment. The collaboration of the medical profession with the work of the dispensaries is becoming more extensive every day; 59,634 patients, in place of 46,801 in 1929, were referred in 1930 by the practicing physicians.

Transmission of Lymphogranulomatosis to the Monkey

Professor Levaditi, in collaboration with Ravaut and Cachera, injected into a monkey's brain pus from human lymphogranulomatosis. An emulsion from this infected brain inoculated under the preputial skin of a patient affected with dementia paralytica produced in him a typical bilateral inguinal adenopathy. An antigen prepared with this heated emulsion was employed to produce intradermal reactions in patients affected with genuine lymphogranulomatosis and in others affected with various suspected lesions. Reaction was constantly positive in the first and negative in the other cases (one case somewhat doubtful). The results with these reactions when human antigen was used were similar, thus establishing frankly the identity between experimental lymphogranulomatosis in the monkey and the same disease in man.

The Treatment of Pulmonary Gangrene

Prof. H. Vincent and Mr. Stodel presented recently, before the Academy of Medicine, accounts of their extensive experience in the treatment of pulmonary gangrene. They distinguished genuine gangrene with sphacelus of the pulmonary tissue from other putrid disorders of the lung, with which it is often confounded. The disease may be caused by many different micro-organisms, among which the anaerobes are prominent, especially B. fusiformis, B. ramesus and, more rarely, B. perfringens. The spirochetes are not the usual agents of pulmonary gangrene. They may be absent in the fatal and the benign forms. But Streptococcus viridans or hemolyticus is found frequently, and, in association with fusospirillary symbiosis, creates a special factor of gravity. One may encounter the pneumococcus, Bacillus coli, B. pyocyaneus, and especially the enterococcus. Vincent has treated pulmonary gangrene, since 1917, with polyvalent antigangrene serum, which he prepared in collaboration with Stodel. The mortality, leaving out of consideration the cases in which treatment was begun too late, is 16 per cent. But this serotherapy must be supplemented by arsphenamine treatment when an examination of the sputum shows the presence of spirochetes, although the arsphenamines if employed alone may be inadequate. If there are streptococci, antistreptococcus therapy is needed in addition, and more rarely antipneumococcus therapy. Prophylaxis in the form of oral hygiene is required of patients who cough and also of patients operated on, for all the micro-organisms found in pulmonary gangrene come from the buccal cavity, from which they are drawn into the bronchi in breathing.

BERLIN

(From Our Regular Correspondent)

Jan. 25, 1932.

Draft of a Law Regulating Medicinal Products

The constitution of the German *reich* fully recognizes the right of the national government to enact legislation regulating the preparation, manufacture and sale of medicinal products, but federal control of such matters has been to date exceedingly meager. A law that will control the manufacture of medicinal remedies, and also a systematic recapitulation and reorganization of the existing laws, are needed. The draft of a law pertaining to medicinal products has been presented, which is, however, in the nature of a skeleton law, containing the requisite definitions of terms, delimitations of the applicability, and the necessary provisions of a general nature, as well as statements concerning the range of authority of the federal government. A number of existing provisions have been recast in a different form, while for other matters, such as the supervision of production and the introduction of a test for certain medicinal products (vaccines, therapeutic and protective serums, arsphenamines, digitalis leaves) new provisions have been drafted.

The proposed law is the foundation on which is to be erected later the system of regulation, which will constitute the decisive content of the law, from the standpoint of practical utilization and scope. Precisely this form of the skeleton law constitutes one of the chief points of difference in the violent controversy that has developed with the various commercial interests—namely, preeminently the pharmaceutic industry. The draft of the provisions concerning enforcement, as the decisive part, must be awaited before any definitive attitude can be taken toward the proposed legislation. The draft as already published contains, above all, fundamental definitions; for example, of the terms "medicinal products," "disease," "malady" and "medicine." It is important that also measures for the prevention of pregnancy, if they are likely to be injurious to health, as well as measures for the interruption of pregnancy, are to be controlled by the law.

One of the important paragraphs contains the regulations concerning the manufacture and sale of medicinal products. The needs of the situation are to be the determining factors in the promulgation of regulations concerning manufacture and sale. It is peculiar that it is not the production of a single preparation that requires authorization but the establishment of a pharmaceutic manufacturing plant. Such authorization may not be given an industrial plant unless the owner furnishes proof that he has the necessary scientific knowledge to carry on such an enterprise in a satisfactory manner. The aim is to eliminate the production of injurious medicaments or such as are likely to deceive the consumer, without imposing more burdens than actually necessary on the manufacture of unobjectionable products. All parties concerned have, on the other hand, an urgent interest in seeing that concessions are conferred only on reliable producers. It is, for example, in no wise desirable that persons without scientific training shall interest themselves in the production of "specialties."

The number of medical specialties on the market in Germany varies in different reports, but the usual estimate ranges between five and six thousand. The state, the medical profession and the public are equally interested in the preservation of the pharmacy. It is the trustworthy dispensary of medicinal products.

Of course, trade in medicinal products that are known to be injurious to health is prohibited; for example, a tincture manufectured with methyl alcohol; likewise, the selling of medicine by pedlers, which is said to have become a common practice, is forbidden. It is important that regulations can be promulgated with regard to the collection, preparation, production, quality, testing, designation, packing, storing, transportation, prescribing and dispensing of medicinal products.

Whatever form the law shall assume, it will lead to a clarification of the complicated legal situation in the field of legislation pertaining to medicinal products and will furnish a broad basis for opposing with great energy the illegal traffic in medicinal products, which is eminently desirable, in order to provide our people in a rational and safe manner with the medicines and drugs that they need.

The fundamental demands—a responsible, scientifically trained director of a pharmaceutic manufacturing plant, declaration of the active ingredients, holding the producer responsible for the agreement of the declared ingredients with the actual composition, and the abolition of exaggerated or deceptive advertisements—will doubtless be realized in a generally satisfactory manner.

The law pertaining to the manufacture and sale of medicinal products aims, without placing any obstacles in the way of legitimate research and of the development of trade and commerce, to combat abnormal outgrowths and to erect a strong bulwark for the protection of public health.

Irradiation in Treatment of Exophthalmic Goiter

Since the influence of roentgen rays in producing a changed reactivity of the tissues has been known, successful attempts have been made to treat exophthalmic goiter by means of irradiation. Surgical intervention will attain its goal more quickly, whereas irradiation must be carried out for months. A number of studies on the subject (by Professor Schlecht and Dr. Hess, Krankenhaus Bethesda in Duisburg; Dr. Prüfer, Augusta Hospital, Berlin; Professor Halberstaedter, Charité Hospital, Berlin) were recently discussed in the *Münchener medizinische Wochenschrift*. They consider that one cannot decide, in principle, definitively for or against irradiation, but that the whole condition of the patient, and, above all, the manner in which he reacts to irradiation, must be taken into account.

It may occur that in especially sensitive patients poisonous substances will be eliminated from the pathologically changed thyroid gland. If a severe type of goiter is involved, one cannot be certain that irradiation will be successful. An exacerbation of the condition during the period of irradiation may not necessarily be due to that intervention; for the disease may progress in spite of irradiation. In any event, great care must be exercised in the choice of the patients to be irradiated. Hess and Schlecht recommend that an adequate ray dosage be applied and that the ray treatment be not given up too soon. The interval between the beginning of irradiation and definite improvement or cure ranges between three and twenty-four months, the average time being sixteen months. Improvement is usually evident about four weeks after the beginning of the irradiation, and continues more or less slowly but steadily. As a rule, one cannot speak of a satisfactory condition even after the lapse of four months, for the end of the period of action, and thus the peak of the improvement, is not reached until no objectively demonstrable manifestations and subjectively no, or only slight, symptoms are present. This method of treatment must be supported by an internal, dietary and medicamentous therapy. A diet of low protein content (especially as regards meat) but of high carbohydrates and fat content is recommended. If the condition is serious, the patient must remain in bed during the first weeks of treatment. The first series of irradiation is best carried out at a roentgenologic center. During the several series of irradiations careful attention must be paid to the protection of both mind and body, and to the strict observance of the prescribed hours of rest in bed.

Celebration of Medical Society's Centenary

The Ärztlicher Verein in Bremen celebrated, January 9, the hundredth anniversary of its existence. The commemorative address was delivered by the Munich clinician Prof. Friedrich von Müller, his subject being "Old Medical Books." At the memorial session, January 10, Professor Kirstein, the chairman of the society, gave an address in which he presented the need of an independent medical profession and of efficient methods of combating charlatanry. Of the 600 medical societies in Germany, the Bremer Verein is the fourth oldest, being antedated only by the societies of Lübeck, Donaueschingen and Hanover. The society has published an extensive study or history of public health activities, written by Tjaden, "Bremen und die bremische Aerzteschaft seit dem Beginn des 19. Jahrhunderts," which contains much valuable information in the fields of social hygiene and public health in general.

BELGIUM

(From Our Regular Correspondent)

Jan. 15, 1932.

Occupational Medicine in the Chemical Industry

Addressing recently the Société belge de médecine et de chirurgie du travail, Mr. Van Temsche discussed the organization of occupational medicine in the chemical industry. Occupational medicine is a rather new specialty the practice of which requires a thorough knowledge of physiology, pathology, occupational hygiene and social medicine. The nature of the work must be learned chiefly by experience, but the universities have created special chairs of hygiene and occupational medicine. The clinics of occupational medicine provide treatment for the workman; they provide for his rehabilitation, when necessary, and supervise the hygienic conditions of labor. The medical supervisor attached to the management of chemical manufacturing plants should coordinate the activities of the physician in the various plants. The latter should consider questions pertaining to the physiology of labor, the physical and psychologic selection of workmen, and the hygiene of labor; also questions pertaining to the pathology of labor, such as occupational diseases, first aid, and prevention of accidents and intoxications.

Medical Supervisors of Aid Societies

As the mutual aid societies enter more and more into collective bargaining with the medical syndicates, the medical supervisor becomes a necessity. Mr. Van Wilder discussed this question at the congress of the Fédération médical belge. The patient having the right to choose his physician, the mutual aid society, whose duty it is to pay for the treatment and the loss of time, must be entitled to exercise a supervising control over the insured and is not under obligation to place implicit trust in a physician that it has not selected. The medical supervisor of the mutual aid societies thus becomes an important personage in our professional life. He should possess qualities of the highest type: (1) recognized scientific ability, (2) long clinical experience, (3) an irreproachable professional reputation, assuring him of the esteem of his colleagues, and (4) a constant care to preserve the best professional ethics. The supervisor should renounce absolutely all outside medical and surgical practice, at least as regards the members of the mutual aid societies of which he is the inspector. This condition, which is so difficult to carry out in mutual aid societies, is nevertheless of fundamental importance. Following the presentation of this paper, the congress adopted the following conclusions:

The federated physicians wish to collaborate in the most frank and open manner in the organization of a worthy and honest system of social medicine. For that purpose, a double control is indispensable: that exercised by the sick benefit association over its members, and that exercised by the medical syndicate over every physician attending members of the mutual aid societies. If the sick benefit association desires a medical supervisor, he should comply with the following conditions: 1. He should be chosen by the medical syndicate in agreement with the sick benefit association. 2. He must not practice medicine among the members of the mutual aid societies, or at least not among the members of the societies to which he is attached. 3. He must not, under any circumstances, interfere in the relations between the patient and the attending physician. The technical control as affecting the relations between the attending physician and the patient will be entrusted by the mutual aid societies to the medical syndicates. The latter agree under contract to exercise a vigilant control, of their own initiative, and to defer to special demands of the medical supervisor of the mutual aid societies. The latter, in turn, must recognize and comply with the decisions reached by the national council on medical ethics. The congress rejected as improper and vexatious any other system that is in opposition to these principles.

The Congress on Natality

In November, Brussels was the headquarters for the Congrès de la natalité, which was devoted to the study of problems associated with the declining birth rate. This manifestation, due to the activity of a group of physicians interested in medical ethics, the Société médicale belge of Saint-Luc, reflects great credit on its promoters and cannot help but exert a good influence on the environment. In some twenty papers, presented, for the most part, by recognized authorities, all the aspects of the vast problem were considered. Special mention may be made of the eugenic point of view, which was presented by Drs. L. Vervaeck and F. Daubresse. The former, considering the problem of the birth rate from the eugenic point of view, holds that the solution depends on the ensemble of measures favoring the biologic quality of the children procreated, as based on certain scientific notions pertaining to physiologic and pathologic heredity. All legal intervention is for the present premature, and all compulsory applications of eugenics, including sterilization of abnormal persons, are unjustified. On the other hand, the voluntary prenuptial medical examination, when the right of privileged communication is preserved, the measures adopted against infectious diseases and intoxication, and the aid to abnormal persons in the sense of amelioration, help to solve adequately many extremely difficult cases that at first sight appear to be unsolvable.

Mr. Daubresse, analyzing the eugenic methods and their scientific and moral value, pointed out that eugenics has its positive side, which furthers the procreation of healthy families, and a negative side tending chiefly to prevent, either by sterilization or by segregation, the reproduction of defectives. He denounced the wrong process of selection commonly brought about by birth control, but, for weighty reasons, approved taking advantage of the agenesic period of women.

Professor Schockaert and Dr. De Guchteneere treated, respectively, the dangers of abortion and of neomalthusianism for the female organism, and the pathologic conditions resulting from contraception, subjects almost identical in their scope and purpose, but the different forms of which serve to strengthen the convictions that are reached: the exceedingly high mortality resulting from abortion (seven times greater than from childbirth) and physical morbidity from infection and secondary sterility owing to loss of hormones, from the development of cancer and fibroma, and from mental disease of unsuspected character, all penalties levied by nature against those who abandon the primordial function of their being.

Accidents from the Use of Chromium

Addressing the Société belge de médecine et de chirurgie du travail, Dr. Langelez discussed recently accidents due to the use of chromium. He took up first certain general chemical ideas pertaining to chromium and its compounds. He then explained the qualities which cause that metal to be valued by reason of numerous industrial applications. In Belgium, workmen are exposed in the chemical industries to accidents from the use of chromium (manufacture of bichromates) and in tanning and electrolytic processes. After explaining the technology of various industries employing chromium, Langelez presented the results of an inquiry recently made in Belgium. In factories producing bichromates, of 130 workmen examined, 59 presented lesions of the skin, and 53 lesions of the nose; in the tanneries, in 104 workmen examined, 23 lesions of the skin and 10 of the nose were noted, and in factories making electrolytic use of chromium, in 47 workmen 32 lesions of the skin and 16 of the nose were observed. Industry does not present generalized injuries due to the use of chromium. The local injuries are of three different types: (1) skin lesions presenting extremely polymorphous aspects (eczema, acne, edema, warts, burns, cicatrices, cracks in the skin), and especially in the form of perforations of the skin (*trous de chrome*); (2) eye lesions (traumatic or tattooing of the cornea), and (3) lesions of the nose, located chiefly at the site of Jacobson's organ and comprising three stages—usually successive: irritation atrophy of the mucous membrane, ulceration, and perforation of the septum.

Dr. Langelez explained the prophylactic and curative treatment of these various special lesions, which, in some cases, may cause loss of earning power. He described also the hygienic measures to be employed by industrialists and the methods of individual prophylaxis that should be observed by the workmen.

AUSTRALIA

(From Our Regular Correspondent)

Jan. 28, 1932.

Scheme for Medical Service for the Middle Class

Conditions of medical practice and especially of public hospital service in Australia are fast reaching an impasse. Owing to the financial depression, patients are attending in increasing numbers at the public hospitals, which, to make matters worse, have suffered a reduction of income consequent on the decrease in private subscriptions and the reduction of government grants. Hospital managing boards are desperately striving to make up their deficiencies. Contributory schemes whereby, for 6d a week, subscribers receive free hospital and medical service are attractive to hospital managements, but they have the grave disadvantage that no payment is made to the medical men for services rendered. At present, the combined overdrafts of seven public hospitals in Melbourne amount to £196,000. It is felt quite definitely that the public hospitals for the present must revert to that service for which they were originally created—a service to the indigent—financed by charitable gifts from the community.

In order to cater to that growing social group which is unable to pay full private fees for medical service and to prevent exploitation of the medical profession, it is proposed to establish an organization, controlled by the British Medical Association, which would offer to the people, particularly in the industrial suburbs, a means whereby they can insure against the requirement in the time of sickness of medical and nursing service and of pharmaceutic supplies.

The scheme will be in the nature of a voluntary insurance. It is proposed to charge a regular rate plus a definitely reduced charge for each service rendered. The scheme will be so arranged that freedom of choice will be given to the subscriber as regards his general practitioner, his consultant, his surgeon, his hospital and his chemist.

For a weekly premium varying from 5d for a single male or female under 21 years, to 1/- for a subscriber and wife and more than two children, the subscriber receives domiciliary medical service at a service charge of 3/6 per visit or consultation (the ordinary fee being from 10/6 to £1/1/-), investigational services—pathologic or roentgenologic (5/- service fee) and pharmaceutic services (service fee half rate per prescription). In country districts the domiciliary service fee may need to be increased, and a mileage charge made for distances over two miles. A separate contract provides nursing and hospital services, consulting and specialists services for a fee of 9d per week or 39/- per year. This will provide cash benefits to subscribers: hospital expenses £2 per week, consultant and specialist service—surgical operations (major) up to £9, obstetric fee £3/3/-, anesthetic, £1/1/-. In each district there would be a bureau which would act as the local administrative office of the scheme and at that office every applicant for public hospital treatment (apart from emergency) would be submitted to an investigation of his financial status.

A central hospital bureau would be established which would have a current knowledge of hospital beds available in the district for the various categories of cases. It is proposed ultimately to eliminate the private nursing home and establish, instead, self-supporting hospitals designed to accommodate subscribers to the scheme.

In order to be eligible to benefit from this scheme, subscribers must have an annual income of less than £208 in the case of the single man or woman, and less than £312 for a married man, the limit being raised by £25 for each child.

This scheme has aroused considerable interest among the medical profession of Australia, and it is considered that, with minor alterations, it will be extensively adopted. The scheme is the culmination of years of discussion and consideration, and provides the first serious attempt to provide a complete private medical service for the lower middle class. The acceptance of this scheme by the public will be watched with considerable interest.

The Australasian College of Surgeons

The Council of the Royal College of Surgeons of England is presenting a hand-wrought and chiseled silver mace to the Royal College of Surgeons of Australasia. The staff is decorated with a pattern of English roses, Australian wattle and New Zealand ferns, and it is inscribed with the names of the twenty-four members of the council for the present year. The total weight of sterling silver is 189½ ounces troy, and the length is 3 feet 10⅜ inches. The mace will be presented to the Australasian body when Lord Moynihan visits Australia this year.

Under the will of the late Dr. Gordon Craig, the Royal Australasian College of Surgeons ultimately will benefit to the extent of about £40,000. Dr. Craig was a founder of the college and a member of the council from the time of its inception. The sum bequeathed to the college will be held in trust. One half of the income from it will be devoted to the promotion of research in surgery, and the remainder will be used to assist young graduates of exceptional ability and promise to take postgraduate work in surgery.

The Medical Press of Australia

Considering the relatively small population in Australia, it is well supplied with medical periodicals. The *Medical Journal of Australia*, published weekly in Sydney, is the official organ of all British Medical Association news and reports. The *Journal* receives all papers read at official meetings of branches and also publishes original research contributions by Australian medical scientists. It has recently added to its usefulness by publishing a series of special articles on diagnosis contributed at the request of the editor by Australian authorities in various branches.

The *Journal of the Cancer Research Committee* of the University of Sydney, published monthly, has as its aim the education of the general practitioner in cancer diagnosis and treatment; it records the developments in the organization of cancer treatment in New South Wales and also publishes research work done under its egis.

The *Melbourne Hospital Clinical Reports* publishes quarterly some of the excellent papers read at clinical meetings and makes a special feature of digests of the hospital records dealing with various subjects.

The *Australian and New Zealand Journal of Surgery*, published monthly as the official organ of the Royal Australasian College of Surgeons, deals mainly with research in surgery and surgical pathology. It is considered that Australia is too small to justify any other specialty publishing its own journal.

A recent arrival in the periodical field is the *General Practitioner*. In this journal, research work has no place; proceedings of societies are excluded. It is a monthly postgraduate course. The extent of its circulation is an index of its popularity among the group of practitioners for whom it is specifically intended.

The department of health of the commonwealth issues a small periodical entitled *Health*, which is now mainly an official circular. An educational type of journal is the *Health Bulletin*, published by the Victorian Department of Public Health.

Statistics of Private Obstetric Practice

An analysis of 2,000 accurate case records collected by the obstetric section of the Queensland Branch of the British Medical Association showed a maternal mortality rate of 0.4 per cent. The rate for Australia as a whole for 1930 was 0.529 per cent. The puerperal morbidity rate according to British Medical Association standards was 7.3 per cent. The most frequent abnormality of presentation was occipitoposterior, 8.8 per cent; this rate included 2.7 per cent who were delivered in that position. There were 2.9 per cent breech presentations, 0.1 per cent face, and 0.05 per cent brow. Prolapse of the cord occurred in 0.45 per cent and hydramnios in 0.35 per cent.

Under the heading of abnormal labor, placenta praevia occurred nine times (0.4 per cent) with the loss of only one mother. The antepartum hemorrhage rate was 0.8 per cent and the postpartum rate, 1.9 per cent. Although 6.8 per cent had albuminuria, only 0.6 per cent developed eclampsia. Pyelitis occurred in 1.7 per cent.

The fetal mortality was 3.3 per cent, made up of the combined rates of macerated fetuses and 2.3 per cent stillbirths. Plural births occurred in 1.2 per cent of the series.

Lacerations of the perineum occurred in 25.9 per cent of the series, made up as follows: first degree, 16.2 per cent; second degree, 8.1 per cent; third degree, 0.2 per cent, and episiotomies, 1.3 per cent.

As regards the environment of the delivery in its relation to puerperal morbidity, it was found that 7.5 per cent of those attended in maternity homes were morbid, 6.5 per cent in general hospitals and only 4.5 per cent in the group that were delivered at their homes. Consideration, however, must be given to the tendency for difficult cases to be attended in a hospital. There were 23 per cent instrumental deliveries with a morbidity rate of 10.2 per cent. Of the patients who were morbid in the puerperium, 2.6 per cent of the total series were mild cases, 1.8 per cent had breast inflammation and congestion, 0.9 per cent had sapremia, and only 0.3 per cent developed severe sepsis.

TURKEY

(From Our Regular Correspondent)

Ankara, Feb. 16, 1932.

Antihookworm Campaign in the Black Sea Region

The eradication of malaria, syphilis, tuberculosis and trachoma was the chief public health problem before the World War. Another serious problem has presented itself as an outcome of the war, toward the end of which reports came from the Black Sea region that hookworm was threatening to become a menace. Practically nothing was known about the existence of hookworm in Turkey until that time. The few isolated cases that had come under observation before had been accidentally discovered in natives from Mesopotamia, the Yemen and the Hejaz who were undergoing treatment at the Istanbul city hospitals for some other disease. Twice in 1914 and 1915, hookworm had been discovered in the stools of inmates of the army hospital at Kuleli on the Bosphorus. About a year later, Prof. Neshat Omer reported that among more than 1,000 laboratory tests made at the Red Cresent Hospital in Palestine four cases of infestation with Ancylostoma duodenale had been diagnosed.

The postwar publications of Prof. Tevfik Salim Pasha, Akil Muhtar and others concerning Necator americanus in natives from the Black Sea region resulted in an investigation at the hospital laboratories in the provinces, which plainly demonstrated that hookworm was confined to the Black Sea region. It was decided, therefore, to organize an antihookworm campaign in the Rize province in the southwestern part of the Caucasus, where the climate and living conditions favor the spread of the disease.

In 1930, the ministry of health and social assistance asked Dr. Ziya, assistant professor of bacteriology at the Haydar Pasha medical school, to make an investigation there with the aid of a field laboratory and four sanitary inspectors. After a year's work, Dr. Ziya reported that the conditions were as follows:

The laboratory tests made in the different communities of the Rize province revealed a high incidence in the Hopa district, and antihookworm activities were begun there first. By the end of February, 1930, in the Rize province, 5,989 persons had been examined, with the result that infestation was discovered in 3,096 persons, or 51.6 per cent. Though 50 per cent may be taken as the average, in some communities the index of infestation was as low as 41 per cent and in others as high as 76 per cent. The distribution of the infestation varied with different family groups. Either all or a great majority of the members of certain families were involved, while in certain other families there was no infestation. This may seem paradoxical, but it is explained by the particular living conditions of these communities. The microscopic examinations did not show any marked difference as far as sex and age were concerned. The accompanying table shows the result of 3,799 examinations.

Incidence of Infestation

Age	Number of Stools Examined	Presence of Eggs	Absence of Eggs	Per Cent
1-10 years.........	1,126	597	529	53.1
11-20 years.........	1,089	576	513	52.8
Above 20 years.....	1,584	859	725	54.2
	3,799	2,032	1,767	

In his study of the adult parasites, Dr. Ziya has invariably found Necator americanus but never Ancylostoma duodenale. If parasites are found in large numbers, the eggs are numerous also, but the eggs were not always found at once, so in a number of cases three or more specimens had to be produced from one person. As it would have been too time consuming to make more than one examination per person, treatment was prescribed for everybody when the egg index in a community approached 50 per cent. From ten to fifteen days after administration of the anthelmintic, the stools of persons found infected previous to treatment were reexamined.

By the end of February, 1930, 500 persons had been treated. Laboratory examination following treatment revealed, however, that in 8.6 per cent eggs were still present in those persons whose stools had at the previous examination contained numerous eggs. After a second treatment, eggs were still present in 1 per cent.

In the beginning of the campaign a mixture of carbon tetrachloride and oil of chenopodium was used, but as symptoms of intolerance were observed, the use of oil of chenopodium was abandoned and the treatment continued with pure carbon tetrachloride only, the purity of the product being ascertained previously at the Ankara chemical laboratory. One dose of the tetrachloride in water was administered to 1,201 persons, from 0.1 to 0.15 cc. to each year of age for children, and a maximum dose of 2 cc. for adults. In 20 per cent of these persons, violent headache and drowsiness was observed, lasting from six to twelve hours, but as long as forty-eight hours in some cases. In an 8 year old child, vomiting and violent pain in the abdomen appeared on the day following the administration of the medicine, and the child died three days later though everything was tried to avert such an outcome. Dizziness with disturbed eyesight but without headache was present in quite a number of cases. The method of administration therefore was changed to the giving of two doses in solution and two hours later magnesium sulphate. Five hundred persons have had this treatment, and in 1 per cent of them dizziness and fainting was being observed within from one to two hours; in 5 per cent there was headache accompanied by drowsiness, and in another 5 per cent these symptoms were accompanied by an elevation of temperature to 99.5 F.

To eliminate these undesirable results, the dose of tetrachloride was decreased to 1.5 cc. for adults and from 0.1 to 0.2 cc. as the maximum dose for children. No important untoward symptoms were observed with the latter dosage, but in from 2 to 3 per cent of the persons treated slight dizziness was present.

The examination of stools on a large scale in the Rize province revealed that the eggs of Ascaris, Trichocephalus and Oxyuris vermicularis often existed side by side with those of Necator americanus, the eggs of Ascaris being found in 28 per cent and the eggs of Trichocephalus in 6 per cent. It appears that Oxyuris vermicularis and Ascaris also yield to carbon tetrachloride, as they were seen occasionally, but after treatment the eggs of Ascaris and Trichocephalus were invariably present in much greater numbers. It is almost certain that before the World War hookworm did not exist in the Rize province. It is believed that hookworm was introduced into the Rize province by Russian laborers engaged there in road construction during the time the province was being occupied by the Russian army toward the end of the war. The southern part of the Rize province is mountainous, the coast has fertile valleys, and there is an abundant rainfall. There are numerous springs. The humidity of the soil is high. The province is densely populated, and agriculture is the main occupation. The privies in rural communities are defective and insufficient in number. The humidity of the soil, its pollution with different kinds of manure, and the fact that the people spend the greater part of the year in the fields all contribute to the wide spread of the disease. Since the beginning of the antihookworm campaign, sanitary privies have been installed and instruction has been given the population as to the prevention and mode of transmission of the disease. The indiscriminate use of manure on fields, the use of contaminated wells for their watering and the pollution of drinking water have been strictly prohibited. The area to be covered by the antihookworm campaign is large; its sphere will gradually be widened.

Marriages

ROBERT BURNS SANDERSON, Crown Point, Ind., to Miss Alpha Lorraine Rodenberger of Springfield, Ill., Dec. 25, 1931.

GEORGE R. DILLINGER, French Lick, Ind., to Miss Margaret Dowden of Jeffersonville, Dec. 27, 1931.

WILLIAM BAIRD STUART, Carlisle, Pa., to Mrs. Hanne Daube Berk of Germany, January 7.

THEODORE R. KOENIG, Edgewood, Pa., to Miss Helen Clayson of Pittsburgh, January 1.

JAMES ALFRED GOOCH to Miss Lelia Watkins Stacy, both of Richmond, Va., January 4.

MATHEW GRISWOLD, JR., to Miss Charlotte Brevillier, both of Erie, Pa., Dec. 22, 1931.

RANDALL B. HAYES, Jersey Shore, Pa., to Miss Sara Bitler of Millville, Dec. 8, 1931.

ROBERT IRVING HILLER to Miss Ruth Krome, both of Milwaukee, January 3.

RICHARD S. BECHK, Cleveland, to Miss Josephine Dohman, recently.

Deaths

David Clark Thompson ⊕ Bloomfield, N. J.; University and Bellevue Hospital Medical College, New York, 1911; fellow of the American College of Surgeons; served during the World War; on the staffs of the Mountainside Hospital, and St. Vincent's Nursery and Babies' Hospital, Montclaire and the Essex County Hospital for Contagious Diseases, Belleville; aged 46; died, in February, of heart disease, while aboard the *S. S. Pastores*, bound for the West Indies.

John Milton Allen ⊕ St. Johnsbury, Vt.; University of Vermont College of Medicine, Burlington, 1890; Bellevue Hospital Medical College, New York, 1891; member of the New England Surgical Society and fellow of the American College of Surgeons; attending surgeon to the Brightlook and St. Johnsbury hospitals, St. Johnsbury, Orleans County Memorial Hospital, Newport, and consulting surgeon to the Littleton (N. H.) Hospital; aged 64; died, February 9.

Charles Whitney Page, Hartford, Conn.; Harvard University Medical School, Boston, 1870; member of the Connecticut State Medical Society, Massachusetts Medical Society, American Psychiatric Association and the New England Society of Psychiatry; aged 86; died, February 16, of chronic myocarditis and acute bronchitis.

Arthur John Weaver ⊕ Muscatine, Iowa; Bennett College of Eclectic Medicine and Surgery, Chicago, 1895; past president of the Muscatine County Medical Society; fellow of the American College of Surgeons; member of the state board of health; on the staff of the Bellevue Hospital; aged 66; died, March 1, in a local hospital.

Sydney Henry Smith, Salinas, Calif.; John A. Creighton Medical College, Omaha, 1909; member of the California Medical Association; aged 52; died, Dec. 17, 1931, in the University of California Hospital, San Francisco, of carcinoma of the left suprarenal, with metastases to the lungs, liver and vena cava.

John H. Bailey, Clyde, Texas; Memphis (Tenn.) Hospital Medical College, 1895; member of the State Medical Association of Texas; aged 61; died, February 13, in a hospital at Abilene, of injuries received when the automobile in which he was driving was struck by a train.

Henry B. Luhn ⊕ Spokane, Wash.; University of Pennsylvania School of Medicine, Philadelphia, 1891; fellow of the American College of Surgeons; surgeon to the Sacred Heart Hospital; aged 64; died, February 10, in Moscow, Idaho, of myocarditis and edema of the lungs.

Charles Sleeper Gilman, Lakeport, N. H.; Baltimore Medical College, 1896; member of the Massachusetts Medical Society and the American Proctologic Society; aged 58; died, January 20, in the Laconia (N. H.) Hospital, of gallstones and cholecystitis.

George Albert Haveman, Columbus, Ohio; Miami Medical College, Cincinnati, 1905; member of the Ohio State Medical Association and the Associated Anesthetists of the United States and Canada; aged 50; died suddenly, February 20, of heart disease.

Albert Ferdinand Beddoe, Dallas, Texas; Memphis (Tenn.) Hospital Medical College, 1894; formerly professor of diseases of children, Baylor University College of Medicine; aged 78; died, January 27, of diabetes mellitus and pulmonary edema.

Charlotte Fairbanks, St. Johnsbury, Vt.; Woman's Medical College of Pennsylvania, Philadelphia, 1902; fellow of the American College of Surgeons; served during the World War; aged 59; died, February 13, in Framingham, Mass., of brain tumor.

William C. Canfield, Newton, Mass.; University of Pennsylvania School of Medicine, Philadelphia, 1888; member of the Rhode Island Medical Society; aged 74; died, February 8, in the Westborough (Mass.) State Hospital, of arteriosclerosis.

Louis Schapiro, Bangkok, Siam; George Washington University Medical School, Washington, D. C., 1907; representative of the International Health Division of the Rockefeller Foundation; aged 45; died, February 4, of pulmonary embolism.

Abijah Orange Buck ⊕ Elizabeth, N. J.; Hahnemann Medical College and Hospital of Philadelphia, 1890; served during the World War; on the staff of the Alexian Brothers' Hospital; aged 62; died, February 15, of heart disease.

Theodore J. Schweer ⊕ Beardstown, Ill.; Rush Medical College, Chicago, 1897; formerly postmaster; president of the sanitary district and for five years president of the school board; aged 62; died, February 17, of pneumonia.

Charles Homer Holaday, Detroit; Washington University School of Medicine, St. Louis, 1911; aged 51; died, February 12, in a hospital at Miami, Fla., of acute hemorrhagic pancreatitis, chronic hypertension and arteriosclerosis.

George Calvin Skinner, Hamilton, Ohio; Miami Medical College, Cincinnati, 1879; past president of the Butler County Medical Society; formerly member of the board of education; aged 75; died, January 21, in the Mercy Hospital.

Otta Clarence O'Kell, Excelsior Springs, Mo.; Northwestern Medical College, St. Joseph, 1893; member of the Missouri State Medical Association; served during the World War; aged 62; died, February 2, of heart disease.

James M. Merryman, Columbus, Ohio; University of Wooster Medical Department, Cleveland, 1870; Civil War veteran; formerly member of the state legislature; aged 87; died, February 8, of arteriosclerosis and senility.

Frederick W. Bromley, Whitewater, Wis.; University of Pennsylvania School of Medicine, Philadelphia, 1881; member of the State Medical Society of Wisconsin; aged 80; died, February 4, in Palmyra, of cerebral hemorrhage.

Ernest Gustav Nathaniel Tillmanns, Los Angeles; Rush Medical College, Chicago, 1914; member of the California Medical Association; served during the World War; aged 50; was killed, January 25, in an airplane accident.

Robert Merritt Davis, Birmingham, Ala.; Tulane University of Louisiana Medical Department, New Orleans, 1895; member of the Medical Association of the State of Alabama; aged 57; died, February 9, of heart disease.

James Heustis Jones ⊕ Camden, Ala.; Tulane University of Louisiana School of Medicine, New Orleans, 1901; past president and secretary, Wilcox County Medical Society; aged 54; was found dead in bed, February 2.

Willis Warren Dean, Sioux City, Iowa; Medical Department of Omaha (Neb.) University, 1895; member of the Iowa State Medical Society; formerly police surgeon; aged 59; died, February 13, in a local hospital.

John Cady Parsons ⊕ Marcellus, N. Y.; University of the City of New York Medical Department, 1891; on the staff of the Crouse-Irving Hospital, Syracuse; aged 71; died, February 24, of cerebral thrombosis.

Robert Cornelius Fleming, Louisville, Ky.; College of Physicians and Surgeons, Baltimore, 1900; served during the World War; aged 54; died, February 12, in the Methodist Episcopal Deaconess Hospital.

Frank Lyall Griswold, Mazomanie, Wis.; Milwaukee Medical College, 1905; member of the State Medical Society of Wisconsin; served during the World War; aged 54; died, February 11, of heart disease.

James Glynn Gregory, Norwalk, Conn.; College of Physicians and Surgeons in the City of New York, 1868; member of the Connecticut State Medical Society; bank president; aged 88; died, February 1.

Herbert Cline Turrell, Durango, Colo.; Colorado School of Medicine, Boulder, 1902; member of the Colorado State Medical Society; aged 55; died, January 12, in a hospital at Pasadena, Calif.

Matthew H. Blackburn, Princeton, Ill.; State University of Iowa College of Medicine, Iowa City, 1889; member of the Illinois State Medical Society; aged 70; died, February 8, of angina pectoris.

Thomas J. Hardison, Carters Creek, Tenn.; University of Nashville Medical Department, 1880; member of the Tennessee State Medical Association; aged 75; died, January 30, of angina pectoris.

Albert Lawrence Thompson, Makanda, Ill.; St. Louis College of Physicians and Surgeons, 1898; aged 54; died, February 5, in the Holden Hospital, Carbondale, of carcinoma of the throat.

Joseph Ambrose Dittmore ⊕ Chicago; Bennett Medical College, Chicago, 1915; on the auxiliary staff of the Alexian Brothers' Hospital; aged 55; died, February 15, of cerebral hemorrhage.

Jed Burt Freund, Butte, Mont.; University of Michigan Medical School, Ann Arbor, 1900; on the staff of St. James Hospital; aged 57; died, February 3, of chronic nephritis and myocarditis.

Thomas Adolph Heath, Shiloh, Miss.; Hospital College of Medicine, Louisville, Ky., 1881; member of the Mississippi State Medical Association; aged 77; died, January 17, of lobar pneumonia.

Edward Thomas Craney, Orlando, Fla.; Medico-Chirurgical College of Philadelphia, 1910; member of the Florida Medical Association; aged 54; died, February 22, of pneumonia.

George W. Washburn, Star City, Ind.; Eclectic Medical Institute, Cincinnati, 1894; formerly county coroner and county health commissioner; aged 66; died, January 31, of cerebral embolism.

Robert Groves McCarthy, Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1899; aged 55; hanged himself, February 12.

Elizabeth C. Kane ⊕ Memphis, Tenn.; University of Nashville Medical Department, 1898; aged 55; died, February 10, in the Union Memorial Hospital, Baltimore, of carcinoma of the colon.

Fred Hill Fowler ⊕ Joliet, Ill.; Medical Department of Hamline University, Minneapolis, 1897; member of the Kansas Medical Society; aged 57; died, February 15, of an injury to the spine.

Virgil Maro Dow, New Haven, Conn.; Yale University School of Medicine, New Haven, 1864; Civil War veteran; aged 98; died, February 19, of cerebral hemorrhage and arteriosclerosis.

Louis Proudfit, Osceola, Ind.; Medical College of Indiana, Indianapolis, 1902; member of the Indiana State Medical Association; aged 55; died suddenly, February 2, of heart disease.

Germanus J. France, Baltimore; Maryland Medical College, Baltimore, 1911; formerly county coroner; aged 42; died, February 9, of cerebral embolus and vegetative endocarditis.

Anna K. B. Hyden, Alcester, S. D.; Keokuk (Iowa) Medical College, 1897; member of the South Dakota State Medical Association; aged 58; died, February 2, of cerebral hemorrhage.

Joseph Franklin Griggs ⊕ Tacoma, Wash.; University of Pennsylvania School of Medicine, Philadelphia, 1895; aged 60; died, February 9, of a skull fracture received in a fall.

Francis Brinton Jacobs ⊕ West Chester, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1900; aged 57; died suddenly, February 11, of cerebral hemorrhage.

Washington La Fayette Doss, Columbus, Miss.; University of Nashville (Tenn.) Medical Department, 1890; aged 65; died, January 22, in Crawford, of chronic endocarditis.

William Potter Langworthy, Watch Hill, R. I.; College of Physicians and Surgeons in the City of New York, 1876; aged 80; died, Dec. 17, 1931, in Daytona Beach, Fla.

Charles Fredrick Hera, New Richmond, Ohio (licensed, Ohio, 1896); member of the Ohio State Medical Association; aged 75; died, February 2, of cerebral hemorrhage.

Joseph Arnald Denman ⊕ Brackettville, Texas; Tulane University of Louisiana Medical Department, New Orleans, 1901; aged 59; died, February 12, of heart disease.

Robert A. Wallace ⊕ New Castle, Pa.; Miami Medical College, Cincinnati, 1877; on the staff of the New Castle Hospital; aged 76; died, February 6, of heart disease.

Joseph Frank Chretien, New Orleans; Tulane University of Louisiana Medical Department, New Orleans, 1890; formerly a druggist; aged 69; died, December 17.

Clarence E. Exline, Canton, Ohio; Ohio Medical University, Columbus, 1897; served during the World War; aged 60; died, February 17, of pernicious anemia.

Jacob Paul Stroman, McClellanville, S. C.; University of Georgia Medical Department, Augusta, 1885; aged 68; died, January 30, of heart disease and nephritis.

Michael Joseph Brennan, McSherrystown, Pa.; Temple University School of Medicine, Philadelphia, 1919; aged 39; died, February 4, of cerebral hemorrhage.

William Lincoln Bates, Jamestown, R. I. (licensed, Rhode Island, under the Act of 1895); aged 77; died, January 10, of chronic myocarditis and senile debility.

George Wesley King, South Point, Ohio; Ohio-Miami Medical College, Cincinnati, 1910; member of the county board of health; aged 57; died, January 6.

John Martin Weekley, Ulmer, S. C.; Medical College of the State of South Carolina, Charleston, 1860; aged 94; died, January 25, of hypostatic pneumonia.

John Bernard Plent ⊕ Cleveland; University of the City of New York Medical Department, 1891; aged 76; died suddenly, February 16, of heart disease.

William Jeremiah Woodlin ⊕ Columbus, Ohio; University of Michigan Medical School, Ann Arbor, 1895; aged 55; died, February 9, of heart disease.

Samuel James Staples, Bow Island, Alta., Canada; University of Toronto Faculty of Medicine, Toronto, Ont., 1905; died recently, at Medicine Hat.

Charles F. McLain, Calhoun, Ga.; Atlanta Medical College, 1895; member of the Medical Association of Georgia; aged 64; died, Dec. 26, 1931.

Carey Wiley Kendall, San Gabriel, Calif.; Hospital College of Medicine, Louisville, Ky., 1898; aged 63; died, Dec. 30, 1931, of heart disease.

John Haymaker Service, Philadelphia; Jefferson Medical College of Philadelphia, 1889; aged 75; died, February 11, of suppurative prostatitis.

Robert Lee Dowell, Chillicothe, Mo.; University Medical College of Kansas City, 1893; aged 64; died, January 30, of cerebral hemorrhage.

Eugene H. Levering ⊕ Stroudsburg, Pa.; University of the City of New York Medical Department, 1893; aged 63; died, February 10.

Paul B. de La Barre, Port Clinton, Ohio; Western Reserve University Medical Department, Cleveland, 1887; aged 80; died, Dec. 8, 1931.

James W. Hensley, Dewville, Texas; University of Tennessee Medical Department, Nashville, 1888; aged 67; died, Dec. 27, 1931.

Charles Benell, Diamond, Ind.; Medical College of Indiana, Indianapolis, 1889; aged 65; died, January 30, of cerebral hemorrhage.

Francis Wood Shaw, Vancouver, B. C., Canada; University of Toronto Faculty of Medicine, 1879; aged 77; died, January 3.

Walter Tisdale, Simcoe, Ont., Canada; Faculty of Medicine of Trinity College, Toronto, 1877; aged 76; died, Dec. 23, 1931.

Ezekiel Grant Dilworth, New York; Baltimore Medical College, 1895; aged 68; died, February 11, of coronary thrombosis.

Lawrence R. Brown, Sharon, Ga.; University of Georgia Medical Department, Augusta, 1888; aged 69; died, Nov. 26, 1931.

William Calhoun Dawson ⊕ San Francisco; University of California Medical Department, 1907; aged 51; died, Nov. 13 1931.

Homer Michener, Wichita, Kan.; Eclectic Medical Institute, Cincinnati, 1890; aged 68; died, January 4, of myocarditis.

Miles D. Baker, Carbondale, Ill.; Medical College of Ohio, Cincinnati, 1875; aged 78; died, in February, of angina pectoris.

Angela B. Farley, Cincinnati; Miami Medical College, Cincinnati, 1906; aged 56; died, February 10, of carcinomatosis.

Gustave Tedtman, Chicago; National Medical University, Chicago, 1897; aged 67; died, February 10, of heart disease.

William Herman Stone, Wilder, Tenn. (licensed, Tennessee, 1914); aged 45; died, February 8, of heart disease.

David H. Funderburk, Lancaster, S. C.; Maryland Medical College, Baltimore, 1904; aged 66; died, Dec. 4, 1931.

William Irwin Taylor, Port Credit, Ont., Canada; T. Medical College, Toronto, 1898; died, Nov. 24, 1931.

Bureau of Investigation

NORMAN BAKER VS. THE AMERICAN MEDICAL ASSOCIATION

The Jury Declares the Association Not Guilty of Libeling Baker

Norman Baker of Muscatine, Iowa, who headed a number of mercantile enterprises, including the ownership of a radio broadcasting station and an alleged cancer cure, was dealt with, editorially, in The Journal of April 12 and April 19, 1930, and in *Hygeia* for May, 1930. As a result of these publications, Baker brought suit for libel against the American Medical Association, asking one-half million dollars in damages. This case came to trial in the federal district court in Davenport, Iowa; the trial opened on February 9 and continued until March 3, covering a period of nearly four weeks. Voluminous testimony was offered by the American Medical Association, both through physicians who went on the stand as experts and by scores of depositions that had been gathered by the Association from various parts of the Middle West; much testimony was also put in by Baker. On March 3, the jury returned a verdict for the American Medical Association.

The case was heard before Federal Judge Gunnar H. Nordbye of Minnesota. In this connection, Norman Baker's weekly paper, the *Midwest Free Press*, prior to the trial expressed the editorial opinion that because the case was going to be heard before a judge who was coming from Minnesota, Baker would "not get all that's coming to him." To quote:

> "We fear he [Norman Baker] will not get all that's coming to him Judge Dewey was to hear the case and at the eleventh hour now announces a judge from Minnesota coming to try the case that may be O. K but WHY WE ASK, is it necessary to go away out of our district to secure a Federal Judge we wonder how Dr. Mayo, who is a power in Minnesota would like it if he were in Mr. Baker's place and an Iowa judge from Muscatine section would hear the case YES WE WONDER Mr. Baker's formulas have accomplished more than Dr. Mayo ever did for cancer, and Baker will have to fight many years yet to educate the ignorant prejudiced and lazy thinking ones who are dominated by organized medicine." [Capitals as in the original. Ed.]

The implications in this statement are fairly obvious.

The jury before whom the case was heard was a group of substantial farmers or retired farmers and merchants. Counsel for the Association were Messrs. Edward M. Burke and Clement L. Harrell of the law firm of Loesch, Scofield, Loesch and Burke of Chicago, with Mr. C. M. Dutcher of the firm of Dutcher, Walker and Ries of Iowa City, who are the attorneys for the Iowa State Medical Society. Norman Baker was represented by two attorneys, Messrs. Charles P. Hanley of Muscatine and J. C. France of Tipton.

Appearing as medical experts for the Association were Dr. Francis Carter Wood of New York, Dr. Joseph Colt Bloodgood of Baltimore, Dr. Burton T. Simpson of Buffalo, Dr. Max Cutler of Chicago, and Dr. Albert C. Broders of Rochester, Minn. Several other physicians also aided the Association, appearing either as witnesses during the trial or by depositions.

BAKER'S ENTERPRISES

Originally, Baker's enterprises seemed to have been wholly or mainly in the commercial field. He sold radio sets, storage batteries, flour, coffee, canned fruit, silverware, brooms, alarm clocks, overcoats, mattresses, automobile tires, typewriters, paints, and many other things. He advertised his wares not only through printed catalogs and through his magazine, *T N T (The Naked Truth)*, but, more important, over his radio station, KTNT of Muscatine. Baker's first excursion into the medical field seems to have been the use of his radio station to advertise an injection treatment for varicose veins, exploited by a Davenport physician.

Baker had two (and, for a short time, three) alleged treatments for cancer that were being given at Muscatine in the building that was known as the "Baker Hospital." They were (1) a treatment for "external" cancer, an arsenic powder exploited by Harry M. Hoxsey, whose methods[1] have been dealt with in these pages, and (2) the injection treatment for "internal" cancers of one Charles O. Ozias of Kansas City—who also has received some publicity through The Journal.[2] When the American Medical Association, through its Bureau of Investigation, first began warning the profession and the public against the Baker cancer-cure business, Baker made the fantastic claim that the American Medical Association had offered him a million dollars for his "cancer cure," in order that it might be withdrawn from the market, so that sufferers of cancer would be compelled to resort to surgery, x-rays and radium! When Baker himself was on the stand during the first day of the trial, he denied that he had ever made such a statement, but his denial was offset by the presentation of a letter from the files of the Bureau of Investigation, signed "N. Baker" and which Baker had to admit he had dictated. In this letter Baker definitely stated that it was a "fact that the Medical Trust offered one million dollars on January 3rd 1930 to suppress this treatment."

Norman Baker was the first witness to be put on the stand by the plaintiff, in order to show that the material published by the American Medical Association had caused him serious financial damage. Baker declared that his monthly receipts from his cancer-cure activities started at $1,380 for October, 1929, climbed to $75,232 for June, 1930, and, following the articles published by the American Medical Association, dwindled until in January, 1932, he took in only $7,008.

BIOGRAPHICAL NOTES ON BAKER

Baker, on cross-examination, admitted that his education went no further than a year and a half of high school work. After leaving school he traveled around the country working in machine shops as a die and tool maker. After two years of this, he went into the vaudeville business, putting on "hypnotism" acts "along psychological lines—mental work." He continued in that field for about eight or ten years, but in 1914 came back to Muscatine, where he started to manufacture calliopes. This work was interrupted for a short time when he went on the road again "putting on an act." In 1920, his factory burned and he then started a mail-order business. His broadcasting station went on the air in November, 1925, at which time he was running the "Tangley Institute," "Tangley Company," "Tangley Correspondence School," and some other things. He had a mail-order "art school," although he admitted that he could not paint a picture for his life. Nevertheless, he advertised to teach "oil painting in ten lessons by mail." Under the name of "Tangley Institute," Baker was broadcasting "to let the world know that varicose veins could be cured without operation." The Tangley Institute went out of existence when the "Baker Hospital" was opened.

From the evidence in the case, it appears that Baker's original intention was to make some financial arrangement with Ozias of Kansas City, whereby the Ozias "injection cure" for "internal" cancer could be used at Muscatine. Such plans, however, never materialized and Ozias testified that he had never sold, loaned or permitted Baker to use the formula. Baker was asked, when on the witness stand, who it was that told him what was in the Ozias mixture; he replied: "I refuse to tell." It was a fact, however, that two persons previously connected with Ozias in the exploitation of the Ozias "cure" were hired by Baker. One of these was a woman, Mary Turner, and the other a chiropractor, Charles Gearing. The Turner woman admitted that she had given thousands of injections of the Ozias "cancer treatment" while in the employ of Ozias; she was employed by Baker to do the same kind of work when she came to Muscatine. Mrs. Turner had no medical training and was not even a registered nurse!

THE FIVE TEST CASES

Baker, on the witness stand, admitted that he broadcast over his radio station that he was going to investigate a cure for cancer (the Ozias "treatment") and that he "wanted five men or women from any part of the United States or Canada who were suffering from cancer to consent to become a test patient for this treatment, that I would pay all of their expenses for them, all doctor bills, nurses' care, medical fee, room and board, and they to pay their own transportation to the hospital [in Kansas City, Mo.] where the treatment would be made." It developed that, as a matter of fact, most of the "test patients" paid their own expenses both in transportation and in fees to Ozias. These "test cases" were dealt with extensively in Baker's *T N T Magazine* and the matter was sent out as a reprint, because, according to Baker, the copies of his magazine containing the material had been sold out. The article was headed in black-faced type, "T N T Magazine Investigation Proves That Cancer Is Curable." The article in question started as follows:

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[1] The Hoxide Cancer "Cure," J. A. M. A. 86:55 (Jan. 2) 1926. The Hoxide Quackery Again, ibid. 93:400 (Aug. 3) 1929.

[2] The Ozias Hospital Association, J. A. M. A. 79:1869 (Nov. 25) 1922.

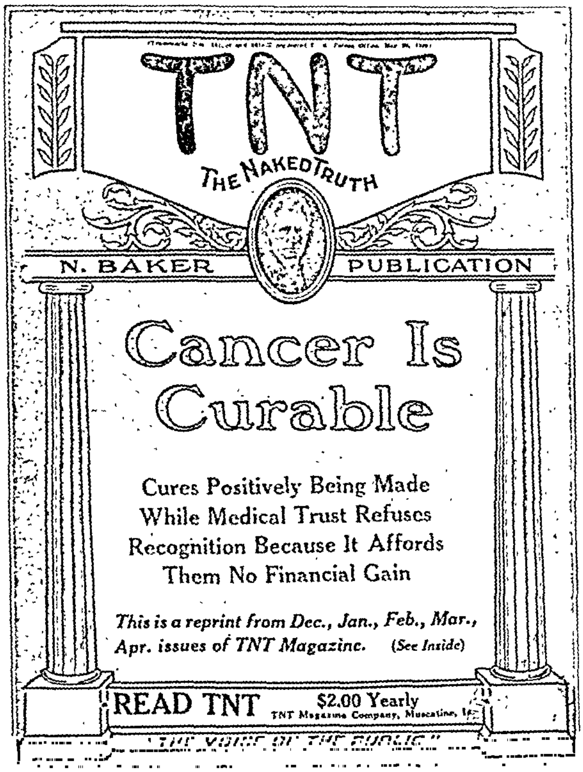
> "Cancer is conquered. The greatest discovery in medical science in years—a positive cure for cancer, that dread disease which has taken toll of millions of lives, caused thousands to commit suicide and driven other thousands to insanity—has been revealed by an investigation conducted by Norman Baker, publisher of T N T magazine and owner of the Norman Baker Enterprises and radio statition KTNT, who was assisted by a physician and member of his staff.
>
> "Seeing is believing. Mr. Baker and his fellow investigators have seen with their own eyes enormous and malignant cancers in advanced stages of growth rapidly yield to a new and painless treatment, soften and disappear. They selected the cancer cases themselves for observation after they had determined beyond any doubt that they were authentic cases of cancer. They have watched these true cases of cancer under treatment and have seen the cancers grow smaller and pass away."

Baker then went on to state that "painstaking observation" of the cases that had been selected for the test had "thoroughly convinced Mr. Baker that cancer has been conquered." The article then goes into detail regarding the five test cases, reproducing photographs of the individuals concerned. Here it may be interpolated that all five of the patients are dead and were dead for some some time before Baker ceased reprinting his article to prove that "Cancer Is Conquered."

Test Case No. 1.—Mrs. T——— was one of the widely advertised "test" cases. Mrs. T——— was taken to Ozias' place in Kansas City by her daughter-in-law, who testified that when they got there, they met Mrs. Turner, who, at that time, was employed by Ozias. Mrs. T——— stayed at the Ozias "clinic" from July, 1929, until September of the same year, and she paid $105. According to Baker's announcement, Mrs. T——— was "suffering from a very bad abdominal cancer" and had been given up by physicians as incurable. Following the Ozias "treatment," according to the Baker report, she began a "rapid recovery" and the "cancerous mass in the abdomen had softened and most of it had passed away." The article added that "only a small amount of cancerous growth" was left and this "no doubt will be eliminated when she resumes the treatment." The facts developed in the trial showed that Mrs. T———, when she returned from Kansas City in September, was practically bedfast, and she died a few weeks later—in November, 1929. This case, heralded by Baker as one of the five "test" cases, was published first in the December issue of *T N T Magazine* and the matter was reprinted and distributed as late as June, 1930—more than half a year after the poor woman had been in her grave!

Test Case No. 2.—Another of the "test" cases was that of Mr. De C———, who had cancer of the throat. Reputable surgeons to whom he went, while not holding out any hope of cure, suggested, as a palliative treatment to prolong his life, the surgical removal of the vocal organs. This he refused and came to Baker. The Baker magazine stated, in describing the case, that "it was believed that three months' treatment would be required to completely cure him" and reported, further, that after treatment Mr. De C——— "went back to work at his trade." The case was reported in detail in a Baker reprint that was sent out in June, 1930—six months after Mr. De C——— was dead and buried! Mrs. De C——— testified that her husband, a laborer, paid $500 for the two months that he was in the Ozias "clinic" at Kansas City. She was asked if it was not a fact that Baker told her, at the time, that he (Baker) would take care of the expense of Mr. De C——— going to Ozias. Mrs. De C——— replied: "Well, he said if he got somebody to send up there, he would pay all of the expenses, but he didn't pay anything. I paid my expenses myself." After his stay at the Ozias "clinic," Mr. De C——— came back to Muscatine, having learned that the Turner woman, previously an employee of Ozias, was now employed by Baker. He continued to take "treatments" in Muscatine, the injections being given by Mrs. Turner. He was there about two and one-half weeks and was charged, according to the testimony, $137.50. Mrs. De C——— testified that Mrs. Turner told her, at the time she went to bring her husband back home, that there was nothing to fear from the cancer "because he is cured, but there is only one thing; his windpipe bothers him and all you will have to do, you go home with him and put some onions on his windpipe. That is all you will have to do."

Test Case No. 3.—This was that of Mr. D———, which was described in Baker's magazine and reprints as that of a patient who had had an exploratory operation by reputable physicians, which disclosed the fact that the case was inoperable. Mr. D——— went to Kansas City to take the Ozias "treatment" in September, 1929, and remained there seven weeks. Mrs. D———, who was called as a witness by the American Medical Association, declared that after Mr. D——— came back from Kansas City he was unable to keep any food down: "he always vomited it up." On his return to Muscatine, the "treatments" were continued until the last part of October or the first part of November, when Gearing and the Turner woman refused to continue them. Mr. D——— died, Dec. 28, 1929. Mrs. D——— asked that a necropsy be done on her husband's body, because Baker had claimed that, in addition to suffering from carcinoma, Mr. D——— was suffering from tuberculosis. The necropsy showed that Mr. D——— had no tuberculosis, but cancer. Baker, in his write-up of this "test" case, said:



TNT

THE NAKED TRUTH

N. BAKER PUBLICATION

Cancer Is Curable

Cures Positively Being Made
While Medical Trust Refuses
Recognition Because It Affords
Them No Financial Gain

This is a reprint from Dec., Jan., Feb., Mar., Apr. issues of TNT Magazine. (See Inside)

READ TNT $2.00 Yearly TNT Magazine Company, Muscatine, Ia.

> "At this writing the cancer which originally covered practically the entire abdomen has been reduced to a lump about the size of a small walnut. It seems certain from his present condition that the treatment will not only cure his cancer but will free him entirely from tuberculosis."

When it was obvious that Mr. D——— would not live much longer, the Baker "institute" refused to give further "treatments," and Mrs. D——— testified that Baker claimed that the reason her husband was not getting well was that he was not taking enough exercise. When Mrs. D——— was asked about this she replied: "How could he exercise when he didn't have any strength to exercise with? One of us had to get on each side of him to make him walk a few feet." Another alibi that Baker attempted to use in this case was that Mr. D——— was smoking too many cigarets. Mrs. D——— declared that her husband had been unable to smoke cigarets since the time he had the exploratory operation and before he ever even went to Ozias or Baker.

Test Case No. 4.—Another of the "test" patients was Mr. J——— of Kansas. Mr. J——— had cancer of the jaw; he had been operated on and given radium irradiations by reputable physicians, who could hold out no hope of permanent cure. Following the operation he went to the Ozias "clinic" as one of the "test" patients. He remained in Kansas City from September, 1929, to March, 1930, and paid out between $700 and $800 in addition to his transportation expenses. In one of Baker's reprints, sent out at late as June, 1930, it was stated regarding Mr. J———:

> "At this writing the patient has recovered sufficiently to begin to worry over the fact that due to the operation he is destined to go through life disfigured. He keenly feels that had he known about the treatment sooner he could have saved both his life and his face from disfigurement. On this account, he harbors considerable resentment towards the doctors who performed the operation."

When this reprint was issued, Mr. J——— had been dead more than a month! He died, May 5, 1930.

Test Case No. 5.—Mrs. N——— of Illinois was still another of the five "test" case patients. Mrs. N——— had cancer of the right breast. Having heard Baker broadcast, she went to Muscatine, where she was accepted as one of the "test" cases to go to Ozias. She stayed at the Ozias "clinic" for about two months, at which time she wrote to her husband, according to the testimony of her son, that if they "didn't come after her, they will bring her home in a box." The son also testified that the mother paid between $250 and $300 in addition to her traveling expenses. The son also testified that when his mother went to Kansas City "the cancer was about the size of a half-dollar," and that when she returned "it was two or three times bigger." The Mrs. N——— "test case" was being reported by Baker as late as June, 1930; she died of cancer, Feb. 25, 1930!

THE CASE OF MR. MCL———

Another case that did not belong to the five "test cases" but which was heralded by Baker as a cure was that of Mr. McL——— of Kamsack, Sask., who had cancer of the esophagus. Mrs. McL——— testified that her husband had consulted several reputable physicians in Canada and the United States before going to Muscatine. They were persuaded to go to the Iowa town after she and her husband heard Baker and his manager, R. A. Bellows, broadcast over KTNT about their "institute." As a result, they sent Baker a telegram and received a reply to the effect that the Baker Institute would treat her husband for $100 a week. Mr. McL——— stayed at the "institute" nine weeks and paid Baker $400 in cash and, in addition, signed two notes, one for $280 and the other for $200, which were later returned.

Mrs. McL——— said that when they first arrived in Muscatine the "Baker Hospital" had not opened, so they went to Baker's store, where they were told that the "cancer doctor" was out but that they could see him later. This "doctor," it later developed, was chiropractor Gearing. Mrs. McL——— worked in the Baker establishment while her husband was there, in order to help reduce the expense to which they were put. She testified that while she was given a job as a nurse at $25 a week, the price Baker was charging her husband was immediately raised from $100 a week to $125 a week! She protested at this and called attention to the fact that other patients were receiving treatment at $50 a week. Not until Mrs. McL——— threatened to give the facts to the newspapers did the Baker concern reduce the rates for her husband to $85 a week.

Mr. McL——— finally got so weak that he had to be taken back to Saskatchewan. Mrs. McL——— further testified that one night after their return and but a short time before her husband died, they happened to turn on the radio and heard Baker, over KTNT, say: "Hello, Kamsack, Canada. Hello, Mr. and Mrs. McL———, how are you?" Baker then went on to describe Mr. McL———'s treatment at the "institute" and told how he had been sent home cured, how he was able to eat solid food, and how Mrs. McL——— had written to Baker, stating that her husband "was coming along fine." The facts were, according to Mrs. McL———, that she never wrote to Baker after returning to Kamsack, and that her husband had *not* been able to eat any solid food since leaving the "institute." Mr. McL——— died, April 12, 1930.

It was brought out in Mrs. McL———'s testimony that at the time she and her husband left the Baker Institute, Mrs. Turner, who with chiropractor Gearing had been giving the injections, gave her a small bottle of the injection fluid, with instructions that should her husband need it, she should get a nurse to administer it, but under no circumstances allow it to get into the hands of a physician. Mrs. McL———, however, turned over the specimen to her family physician, Dr. C. E. Tran, who later gave it to Mr. Edward M. Burke, defense counsel. Mr. Burke deposited half of the liquid with Dr. Paul Nicholas Leech, director of the A. M. A. Chemical Laboratory, and half with Dr. Wilber J. Teeter, dean of pharmacy at the State University of Iowa, with the request that both men analyze the material. Later, both Dr. Leech and Dr. Teeter testified that their analyses of this liquid disclosed that the product was essentially one-third carbolic acid (phenol) in a mixture of glycerin and alcohol, with a trace of oil of peppermint.

THE OPEN-AIR SHOW

One of Baker's advertising stunts was characteristic of a man who had been in the "show business." He broadcast that the Baker Institute would hold an open-air meeting at Muscatine, where it would be demonstrated that both external and internal cancer was curable by the Baker methods. In the June issue of *T N T Magazine*, it was claimed that 32,000 people attended this meeting. In the same issue he purported to describe some of the "wonders" that were shown at that time. One of the more spectacular was thus described:

> "Most amazing and remarkable of all, the entire top portion of the skull of a patient almost in the last stages of cancer was removed and held up for exhibition by the physician before the gasping throng exposing the brains of the entire top of the patient's head."

This was the case of one M——— J———. Large-sized reproductions of photographs were published in *T N T Magazine*, one showing Mr. J——— "with bare skull bone exposed," another showing one of Baker's hired men "just after he had administered treatment and removed skull exposing brain," and a third showing what purported to be a "close-up view of brain of M——— J———" and the alleged "cancerous growth which was eating his life away." Investigation brought out the fact, obvious to any physician, that the man never had cancer but *did* have an osteomyelitis. The condition was treated by Hoxsey at the Baker Institute and, while there, the outer layer of the skull was, as the patient put it, "just pried off." What the gaping crowd saw at the "demonstration" was not the man's brain, as reported by Baker, but the medullary portion of the skull.

THE CASE OF MRS. MCM———

The case of Mrs. McM——— also carried some interesting high-lights. Mrs. McM——— had cancer of the esophagus diagnosed by reputable surgeons as inoperable. After hearing Baker over the radio telling of the cures that were being performed, she and her husband went to Muscatine, where they met chiropractor Gearing and Mrs. Turner. The day before Mrs. McM——— died in the Baker Institute, according to the testimony of her husband, another of the alleged doctors of the "institute" examined her and "said she was all ready to go home, and he told Mrs. Turner her heart was good and her cancer was all gone and she could go home and build up quicker than she could there." Mrs. McM——— died the next day! Mr. McM——— had paid $800 in cash for three months' treatment and had been told that if his wife did not receive any benefit the Baker Institute did not want his money. In spite of the fact that the poor woman died after being in the "institute" only a little more than sixty days, it was necessary for Mr. McM——— to employ an attorney to get a refund.

THE CASE OF MRS. W———

Mrs. W——— went to the Baker concern for cancer of the breast. Her husband testified that she went to Baker because she had a horror of surgery. This point is worth emphasizing for reasons that will appear later. They first saw Bellows, the business manager, who, when he heard she had not had any treatment, operative or otherwise, said "that was fine." Later, they saw Baker, who, according to Mr. W———'s testimony, said: "One thing I am thankful for, folks; this is a virgin case. I am awfully glad *you never let any other doctor tamper with it.*" Baker went on to state, according to the witness, that within a week or ten days, they could tell Mr. W——— whether they could cure his wife or not. They were charged $50 a week and the patient was put in a room containing "either six or seven" other patients. Mr. W——— testified that he saw Hoxsey treat his wife and, later, described how Dr. Statler, who is legally licensed to practice medicine in Iowa, also gave her treatments *under Hoxsey's direction!* The following excerpt from Mr. W———'s testimony on this point is enlightening:

> "*Question.*—Did you see anybody else treating your wife in any manner at the Baker Institute?
>
> "*Answer.*—Dr. Statler.
>
> "*Q.*—What did you see him do?
>
> "*A.*—Well, they had taken the Mrs. into his office one afternoon and laid her on a kind of a table that they had there and Hoxsey sat down on one side and Statler stood up right at about her shoulders and I stood back kind of between them and watched the performance. Hoxsey directed Statler as to what to do, where to make the incisions in my wife's breast.
>
> "*Q.*—Did Statler do it?
>
> "*A.*—Yes sir.
>
> "*Q.*—What else happened there on that day, if anything?
>
> "*A.*—As soon as Statler got through making the incisions, that is, it went so far, and I looked at him and I said, 'That is enough; stop it right there.' And at that Hoxsey and two of the nurses that were in the room left the room immediately. Statler and two more—I believe there was two—was still in there and they helped me take the Missus off of the table and put her in the wheel chair to take her back to her room.

And this, it is to be remembered, was the treatment given this poor woman who dreaded the knife—and it was given without any anesthetic! Mrs. W——— died in the Baker Institute a few days later.

SOME MORE CASES

There was the case of DeB———, a young fellow with a sarcoma of the leg. Testimony showed that he went to the Baker Institute, where he was told they could cure him in seven weeks and that it would cost him $75 a week. He stayed at the "institute" fifteen weeks and paid over $700. At the end of that time the young man's mother was told that they could do nothing further for the boy. She went to Muscatine and took him to his home in Rock Island, and the next day he was hurried to a reputable hospital, where an amputation was performed in the hope of prolonging his life. He lived for about six months and died, Sept. 2, 1930.

Mrs. H——— of Missouri had cancer of the breast. She was operated on by a reputable surgeon, who, according to the testimony of her husband, made it perfectly clear to them both that he could not be at all certain that it would not recur. Shortly after the operation, Mrs. H——— went to the Baker Institute at Muscatine, having heard Baker broadcast his "cure" over his radio station, KTNT. She went to the Baker Institute a few days before Jan. 1, 1930, and stayed there until the middle of February, paying about $340. At this time, she was discharged as "cured." She died of cancer, May 21, 1930!

Mrs. G———, who had an extensive carcinoma involving both breasts and both right and left axillary glands, went to the Baker Institute, Jan. 1, 1930. Her reason for going was expressed by the husband in his testimony, thus: "Mr. Baker talked over the radio and said he could cure cancer, no matter where it was located." Mrs. G——— was there, from Jan. 1, 1930, to March 12, 1930. After her return home, Mrs. G———'s condition became progressively worse; she died, July 23, 1930.

Mr. S———, a shoe repairer, had cancer of the pancreas and his family was told that, while some temporary relief could be obtained by an operation, he could not be cured. An operation was performed and Mr. S——— went back to work on the first of November, 1929, and worked until the latter part of March, 1930, at which time he went to the Baker Institute, having heard Baker over the radio. S——— then asked Hoxsey, according to the testimony of his widow, "Well, can you help me?" and Hoxsey replied: "No, we can cure you." He died, July 21, 1930.

Many other cases similar to those just given were introduced by the American Medical Association, but space does not permit even the abstracting of them. Before closing its case, the American Medical Association put in evidence between twenty-five and thirty death certificates of patients who died at the Baker Institute. The Association also submitted seventeen death certificates of Hoxsey victims.

BAKER'S "EXPERTS"

When the time came for Norman Baker to submit testimony to rebut that which had been put in by the American Medical Association, he called to the stand certain alleged experts. The first of these was E. M. Perdue, M.D., of Kansas City, Mo. Perdue qualified as an "expert" on cancer by stating that he had done special research at Johnson's[3] Laboratory for Cancer Research at Kansas City, Mo. According to Perdue, the cancer cell differs from the normal cell in that it contains more water, and the way to kill cancer is to remove the water from the cancer tissue! This is done, said Perdue, by applying escharotics or by injecting "certain chemicals which substitute that water and take it out, and the cancer dies."

Perdue testified that he had never done any surgical work for cancer nor had he ever used radium or x-ray, and that he would use none of these methods of treating cancer. He said that he had used escharotics in the treatment of cancer and he submitted as an efficient formula, equal parts of powdered zinc chloride, powdered gum acacia, powdered sanguinaria, powdered galingal and powdered charcoal. According to Perdue, a product of this sort "deaquafies" the cancer, "taking the water out by substituting another chemical for it." Furthermore, according to Perdue's testimony, when escharotics are applied, they do not destroy normal tissue, because the cancerous tissue is selective. Perdue declared that the development of cancer was due to an increased alkalinity in the tissues of the person suffering from this disease.

On cross-examination it was brought out that Perdue not only approves of the Koch treatment for cancer, but of the Abrams "electronic" theory; further, that he is using, at the present time, what he described as the "Ellis machine," which is apparently one of the many imitations or modifications of the Abrams device. George Starr White[4] is a personal friend of his, said Perdue, and has taught him "lots of things in diagnosis." Perdue testified that he studied law at the same time that he studied medicine; that he began the study of medicine at the Kansas City Hahnemann Medical College and that he taught histology, anatomy and dissection at the same time. "I was a good anatomist," he admitted, and when asked where he learned his anatomy, he said that it was part of his course in the Kansas Normal College. He claimed, also, to have gone to the Eclectic Medical University of Kansas City. It was brought out that although Perdue has for years been practicing in the State of Missouri, he holds no license from the state board of that state; he claims that he has a right to practice because he had been in practice twenty years prior to the time that the law went into effect. Perdue also claimed to be a civil engineer and a chemist; to hold the degree of M.D. from two schools—one homeopathic and one eclectic; to have the degrees of Doctor of Public Health from the Eclectic Medical University of Kansas City. He also took "courses" in osteopathy and chiropractic in Kansas City schools now out of existence. He claimed to be an authority on mixing concrete and declared, under oath, that he had "superintended millions of dollars' worth of public work," having laid miles of asphalt paving. He did this civil engineering in the "summertime, between the school sessions."

Another Baker "expert" was J. W. Seip, M.D., of Erie, Pa. Dr. Seip is seventy-two years old, a graduate of Jefferson Medical College, 1883, and licensed to practice in Pennsylvania. Dr. Seip admitted that his practice, up until the time of the world war, had been largely general, but "since then, it has been more psychologic and chronic diseases." He said that he "had never done much of any research work on cancer" but, nevertheless, it was his expert opinion that cancer resulted from the "present devitalized condition of our diet" by which "we rob our blood of its known necessary twelve tissue salts." Dr. Seip further was of the opinion that persons suffering from cancer were nearly all "shallow breathers" and that they were the people who were "living on white bread depriving themselves of the salts of our tissues, which are mainly in bran." He declared: "One reason why cancer is so prevalent today is because people eat white bread, and the whiter the bread, the sooner you are dead." The doctor said that in his own treatment of cancer his "principal reliance is upon the Koch antitoxin." The Bureau of Investigation has in its files advertisements from Erie (Pa.) newspapers of eight years ago, reading as follows:

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[3] The Johnson cancer concern is dealt with in the pamphlet "Cancer Cures and Treatments" issued by the Bureau of Investigation of the American Medical Association.

[4] See article: "George Starr White—Quack," The Journal A. M. A., April 13, 1929.

ERIE'S ONLY
Permanent Office Specialist
For Chronic Diseases

Cures high blood pressure, rheumatism, neuralgia, varicose veins and ulcers, scars and strictures, hemorrhoids, weakness, debility, nervousness, etc., without pain.

Hours: 1 to 4 and 7 to 9 P. M.
DR. SEIP
1031-33 State Street.

A third "expert" called as a witness by Norman Baker was Bruce Miller.[5] He testified that he was graduated in 1886 by the College of Physicians and Surgeons, Chicago; that he was "out of practice for quite a number of years" but that in 1926, he went to Taylorville, Ill., where he was connected with Harry Hoxsey and his "Hoxside Institute." He practiced for a short period right after graduation and then worked in a factory and as a paper-hanger from 1891 to 1898; that he then "built up quite a large orchestra of ladies, dummies, in connection with a pipe organ" and went to Europe, where he took his "dummy" troupe and exhibited his "automatic orchestra." He was in Europe from 1899 to 1906, when he returned to the United States and entered the real-estate business, in which he continued until about 1918. Dr. Miller testified that the only treatments he administers for cancer are escharotics and that he does not attempt to treat any cases of "internal cancer," although he admitted that cases of that kind were accepted and the patients were given narcotics to make them comfortable.

The fourth "expert" called by Norman Baker was Harry Hoxsey himself. Hoxsey testified that he was thirty years old and that his education had not extended even through the eighth grade; he then worked as a coal miner and, in 1921, he started in the cancer-cure business at Taylorville, Ill. Hoxsey testified that he went to Muscatine with Norman Baker in March, 1930, and stayed at the Baker Institute until September 4, 1930, on a percentage contract basis. He admitted that he treated many patients and even used the hypodermic needle and gave some injections. It was brought out on cross-examination what had been generally known through the newspapers—that Hoxsey and Baker had a disagreement. Hoxsey's explanation of leaving Baker was:

> "I told Mr. Baker I refused to be a party any longer to bringing people there to take any other treatment only mine because he had shown no results with any other treatment on external cases and I would truthfully say not one, for I haven't seen one single case of external cancer cured there where the powder was not used."

He complained that Mr. Bellows, instead of sending the cases that come in for Hoxsey's powder treatment, would "consign them to the needle department where the intramuscular treatment was used." Hoxsey declared that he had sworn: "I have not seen one case of internal cancer leave that institution Baker Institute as cured that did not take my cancer treatment."

Following Norman Baker's "experts," there were put in evidence a number of alleged cases of cancer that were said to have been cured at the Baker Institute. Most of these were of a superficial type and those of the so-called internal type were not satisfactorily diagnosed as cancer. Baker put on the stand some of the individuals who were alleged to have been cured and, at the same time, presented photographs of the "before-and-after" type as confirmatory evidence. Incidentally, during the closing days of the trial, the United States Marshal took a loaded .38 automatic pistol from Norman Baker. Baker's excuse was that he had a permit to carry one, but he was informed that his permit did not extend to the federal courts.

THE CLOSING ARGUMENTS

In the final arguments, Mr. Dutcher, for the American Medical Association, made no attempt to soften the charges that had been made in The Journal and *Hygeia* regarding Baker. "We called Baker a quack and we are not here to apologize for it," Mr. Dutcher declared. He brought out, further, that the State of Iowa had enjoined Baker from practicing medicine without a license and that the Federal Radio Commission had revoked Baker's broadcasting license, because it found that his operation of the station was inimical to the public interests. He reviewed the history of the five "test" patients that Baker had sent to Ozias at Kansas City, Mo., and emphasized the fact that they were all dead at the time that Baker was declaring, either directly or by implication, that they had been cured. Mr. Dutcher maintained that there was not a single case in the record of the trial in which the Baker Institute could even claim to have cured a case of cancer with its hypodermic injections. Counsel also referred to the fact that Hoxsey and Gearing, neither of whom had any medical training, were known as "Doctors" at the Baker Institute.

Mr. Dutcher also asked why Gearing and Dr. Ozias and numerous other doctors who had been connected with Baker, had not been called by Baker to testify in the case. As Mr. Dutcher stated, not a single M.D. who was associated with the "institute" before the date of publication of the alleged libelous articles had been called to testify, except Dr. Statler, who still had a job there. He dwelt on the evidence in the records showing that Statler once cut a woman's breast under the direction of Hoxsey and that in another case, Hoxsey himself cut the breast and the patient died five days later. Mr. Dutcher also dwelt on the case of the young Iowa farmer, who, suffering from what he thought might be cancer, went to the Baker Institute, where Hoxsey started to "treat" him. Not being satisfied that the Baker Institute knew much about his case, the young man went to the State University of Iowa's Dermatologic Clinic, where they found he was suffering from "barber's itch"! This case, as some of our readers may remember, was the subject of a brief article in this department of The Journal for July 26, 1930.

Baker's attorneys, in their closing speech to the jury declared that the American Medical Association was malicious in attacking Baker and that it had no right to attempt to interfere with Baker's business or injure his reputation.

The case went to the jury as the court closed on the evening of March 2; the jury was out for a few hours that evening before adjourning for the night. They returned to the jury room at nine o'clock the next morning, and at 10:50, a ballot was taken and the vote was unanimous for the American Medical Association. Their brief formal report to Judge Nordbye was: "We, the jury, find for the defendant."

Correspondence

NUTRITIONAL ANEMIA

To the Editor:—In The Journal, February 20, page 660, appeared a communication by Prof. E. B. Hart of the Wisconsin Experiment Station relating to the work of Beard and Myers (*J. Biol. Chem.* **94:**71-146 [Nov.] 1931) on the nutritional anemia of the rat. Since this article contains some statements that are misleading and incorrect, I feel it my duty to give the facts in order that erroneous opinions of our work may be corrected.

In the first paragraph it is stated that the work of Beard and Myers has added to the confusion [of nutritional anemia of the rat]. But that confusion will disappear, I am sure, if one turns to page 74 of the November, 1931, issue of the *Journal of Biological Chemistry*. Under the caption "Milk Used," one will read that the milk that they used was "poured through about five feet of copper pipe into a large nickel cooler" and that this milk contained 0.44 mg. Cu per liter." Let us now examine this statement and see whether it has any bearing on the results that we have already published on the question of the nutritional anemia of the rat.

The reader gets the impression from this statement that our positive results were due to the copper contamination of our milk. That the Wisconsin investigators should hold this view is evident from their publications in this field. Our milk was poured through 5 feet of copper pipe which had a diameter of about 5 inches. This pipe extended from the top to the bottom of the cooler. The time that any given quantity of the milk would be in contact with the metal was thus only a few seconds. Furthermore, milk must be heated to a fairly high temperature before it will take up any metal from a container. Thus it was impossible for our milk to take up any copper from this pipe. Identical results were obtained with milk that never came in contact with any metal. Our milk contained 0.44 mg. of copper per liter. We obtained recovery with pure iron. Hart's milk contained 0.32 mg. of copper per liter and no recovery with pure iron was observed. The difference in the copper content of these two milks was 0.12 mg. per liter, or 0.006 mg. per 50 cc. of milk, which would be consumed daily by a young rat. We have shown that this amount of copper, even if it were all absorbed, cannot have any supplementing effect with iron. In from 35 to 75 cc. of milk daily the Wisconsin rats would be receiving from 0.01 to 0.02 mg. of copper, yet no recovery was obtained with this milk when pure iron was added. It required 0.0025 mg. of copper to show a supplementing effect with iron. The amount of copper *in the milk* and that *in the tissues* of the rat are very different things from the metabolic point of view. We have also shown that there is a *minimum daily dose* of copper that is effective with iron and that doses below this will have absolutely no effect. If it was the copper content of the milk that was giving our effect, why did we get such an accelerated effect when 0.025 mg. or copper was added to the milk-iron diets? This point was fully discussed on pages 99 and 100 of the article by Beard and Myers, where evidence with thirty-three anemic rats was given. This evidence showed that our milk did not contain 0.025 mg. of copper daily (our lowest effective dose).

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[5] Bruce Miller is discussed in the article, "The Hoxide Cancer Cure," already referred to.

Reference was also made to the fact that Keil and Nelson (*J. Biol. Chem.* **93**:52 [Sept.] 1931) used milk containing 0.44 mg. of copper per liter, but on reference to this article on page 93 it is seen that their milk contained from 0.35 to 0.44 mg. of copper per liter. Thus it is just as logical to accept the first figure as the last here. On this milk Keil and Nelson obtained recovery with pure iron, while the Wisconsin group could obtain no recovery with iron when their milk contained 0.32 mg. of copper per liter. When both groups of investigators used milk containing about 0.23 mg. of copper per liter there was no effect when iron was added. One-tenth mg. of copper per liter is equivalent to 0.005 mg. for each 50 cc. of daily milk intake, an amount obviously too small to exert any effect. Thus it is evident that the copper content of milk does not have any bearing on our experimental results.

Reference was made to our work with rats 196-256, in which our milk never came in contact with any metal whatever. We omitted the copper determination of this milk since it gave identical results with our other milk. It was also stated that "their published records show that it was never used with Fe as the only supplement, but only with Fe and Zn." On page 78 of our paper, this statement will be found: "95 anemic young rats fed daily on 0.5 mg. Fe . . . These rats were used as litter mate controls for the experimental animals given in our Paper II" (which contained data for above rats). Suffice it to say that eighteen of these animals were fed on iron alone, with hemoglobin recovery in six weeks, while the rest of them received other supplements with iron, with hemoglobin recovery in three weeks. Results for duplicate groups of rats fed on the same supplements will be found in the tables on pages 95-97.

Elvehjem and Hart (*J. Biol. Chem.* **95**:369, 1932) still infer that our iron solutions contain copper as an impurity. Since we used the hydrogen sulphide filtrate of iron after filtering off the sulphides and removing the gas, with fully 60 per cent of our animals with exactly the same results as with our original iron solutions, it is clearly seen that there is no ground for this continued criticism of our work. If copper is specific in nutritional anemia, how can one explain the positive results of several investigators with pure iron alone? No one will deny the catalytic effect of copper with iron, but there are both experimental and clinical investigators who do not agree that copper is specific in anemic states. Furthermore, Foster (*J. Nutrition* **4**:517 [Nov.] 1931) has shown that irradiation with a quartz mercury arc has a slight but definite effect in increasing the hemoglobin content, number, size and saturation of the red cells in nutritional anemia of the rat. I have, in a preliminary study, confirmed this effect on the recovery in cells.

All the points of technic, and many others, mentioned in the last paragraph were very carefully studied by us in Cleveland and none of them had any effect on the outcome of the experiments.

H. H. BEARD, PH.D., New Orleans.

DIPHYLLOBOTHRIUM LATUM

To the Editor:—In the article on Diphyllobothrium latum (THE JOURNAL, January 23, p. 312) the author states that no cases have previously been reported in the literature from New York.

I reported a case of Diphyllobothrium latum, or Bothriocephalus latus, infestation (the terms are identical) in 1926 from New York City, which appeared in the *Medical Journal and Record* (**124**:536 [Nov. 3] 1926). This paper was further abstracted in the Current Medical Literature department of THE JOURNAL (Jan. 8, 1927, p. 127).

My paper reviewed the literature thoroughly and discussed the theories as to the cause of the anemia arising in this condition. As at that time there were no data on blood changes available, rather elaborate blood studies were undertaken which, although negative, it was hoped would serve as a point of departure for future investigations.

THEODORE ROSENTHAL, M.D., New York.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

PHYSIOLOGIC STERILITY AND CONCEPTIVE CAPACITY

To the Editor:—What is definitely known as to periods of physiologic sterility and conceptive capacity in women? I have read conflicting statements.

[illegible], M.D., [illegible], Texas.

ANSWER.—It has long been maintained that there exists in women a definite period during each month when conception may take place and other intervals when impregnation is impossible. Most of the individuals who are of this opinion are physiologists and anatomists, whereas those who maintain that women may conceive at any time during the [illegible] are essentially clinicians. The one who has done [illegible] the last few years to attempt to prove that there is a physiologic period of sterility is Knaus. By means of [illegible] elaborate experiments he has come to the conclusion that in women with a twenty-eight day cycle there are definite periods of sterility each month. There are [illegible] women who have a four week cycle. One group shows a tendency to a slight diminution in the interval and [illegible] twenty-six to twenty-eight days. These women, according to Knaus, can conceive only from the [illegible] the cycle. The second group has a tendency to a [illegible] menstrual interval, which [illegible] thirty days. These women [illegible] only from the [illegible] The relatively few women [illegible] six and thirty days [illegible] seventeenth day [illegible] intermenstrual interval [illegible] suggests that the ideal time of [illegible] abstinence during the interval [illegible] has devised an intricate [illegible] means of which any woman with a twenty-six to thirty day interval may determine the exact days each month when conception can take place. Knaus's chief reason for his belief in physiologic periods of fertility in women are that: 1. Since spermatozoa lose their power of fertilization after forty-eight hours and since ovulation does not occur until about the fourteenth day, coitus during the first ten days of the cycle cannot result in conception. 2. If we agree with Grosser that a minimum of ten days is required for the wandering period of an ovum, it follows that, in women with a twenty-eight day cycle, ovulation and conception must occur together approximately on the fourteenth to the sixteenth day of the cycle so that implantation may occur and prevent the onset of menstruation.

Many individuals take issue with these statements. First of all, some women ovulate as early as the ninth day of the cycle and hence are susceptible of fertilization on that day or even earlier. Secondly, there appear to be authentic records of a single coitus during the intervals that are supposedly sterile, nevertheless with the occurrence of conception. Of course, many women have good reasons for not telling the truth about these matters and sometimes their memory is at fault; hence not all of these cases are reliable. Theoretically a woman is capable of conceiving only for a short period of time after ovulation; that is, some time between the tenth and the nineteenth day of the menstrual cycle. This is due to the fact that an ovum is susceptible of fertilization for only a few hours and the spermatozoon's capability is not much longer. (The fact that a spermatozoon is motile does not necessarily imply that it is capable of fertilization.) It seems that some women, at least, may conceive at any time in the menstrual cycle even during active menstruation. Far more data are necessary before this question can be settled definitely in human beings. Perhaps the intensive studies being made on monkeys will shed a good deal of light on it. Thus far it seems that monkeys do have a distinct physiologic period of sterility.

OTOSCLEROSIS

To the Editor:—A man, in 1917 at the age of 21, had a bilateral 20/20 hearing. After that time he was more or less continuously exposed to cold and damp weather, whereas before he had led an indoor life. In 1918 a bilateral tinnitus developed, on the left side more than the right, and in 1919 he became noticeably hard of hearing, particularly in the left ear. The condition was diagnosed as bilateral chronic catarrhal deafness. He became progressively more hard of hearing with increased tinnitus, so that in 1928 and 1931 a definite diagnosis of otosclerosis was made. While the etiology of otosclerosis is not clear, would it not be reasonable to assume, first, that the cold and damp weather was an aggravating factor in producing the otosclerosis; second, that the tinnitus was the presenting symptom of otosclerosis; third that, since it is known to be difficult to differentiate between chronic catarrhal deafness and incipient otosclerosis, the definite otosclerotic condition which appeared at the later date was in fact the underlying condition present but unrecognized during the entire period? Please omit name. M.D., New York.

Answer.—The exact etiology of otosclerosis or, as it should more properly be named, spongification, is not definitely known. In the typical cases there is a partial or complete ankylosis of the foot plate of the stapes in the oval window and this carries with it loss of hearing for low tones, prolonged bone conduction and a negative Rinne reaction; namely, bone conduction longer than air. When spongification appears in the bony capsule of the labyrinth at points elsewhere than at the oval window, degenerative changes occur, with signs and symptoms of impairment of the inner ear or perception apparatus. In these cases there is loss of hearing for the high tones, diminished bone conduction and a positive Rinne reaction with air longer than bone, but both factors shorter than the normal. However, in cases in which there are changes both in the oval window and in other portions of the labyrinth there is a combination of signs and symptoms that makes the exact diagnosis difficult. In a typical otosclerosis there is usually an hereditary factor and the disease begins to manifest itself quite early in life. It is doubtful whether, in the case cited, otosclerosis was really present because the patient apparently had normal hearing at the age of 21, and then following exposure there developed what apparently was a bilateral tubal involvement, which became progressively worse. If a true otosclerosis had been present, no doubt symptoms would have presented themselves at the age of puberty and become progressively worse. Otosclerosis itself is not supposed to be caused by any acute or chronic infection of the middle ear, but infections or disorders combined with an otosclerosis naturally make the hearing still worse. Tinnitus is one of the most striking symptoms of otosclerosis, but it may be due to many other conditions. Unless the typical tuning fork and other signs are present together with a history showing factors such as heredity, sex and pregnancies (which of course would not apply in the present case), the diagnosis is difficult to make. In this case it seems unlikely that an otosclerosis was present, for it could hardly have existed such a long time before making itself manifest.

SEQUELAE OF IRRADIATION OF THE THYROID

To the Editor:—A woman, aged 50, during the period from 1915 to 1920 received sixty roentgen treatments for the purpose of decreasing a thyroid activity. Soon after the last treatment was taken, she noticed the formation of superficial scar tissue about 4 inches in diameter and lying immediately over the anterior lower thyroid and upper sternal region. This scarred area is infiltrated with numerous small capillaries, giving the area a reddened appearance. Can you suggest any kind of treatment that may aid in the absorption of this scarred tissue and the disappearance of the superficial capillaries? Please omit name.

M.D., Michigan.

Answer.—Scar formation with telangiectatic dilatation of skin capillaries is a *not infrequent result of overdosage of radiation* over the thyroid for the control of hyperthyroidism. It may be an early or indeed a late development, not appearing for several years following irradiation of the area. There is no known effective treatment for such untoward results save skin grafting, which, under the circumstances and in this location, constitutes a formidable procedure and would be indicated only when the scar in itself produces disability. While disfigurement, as in this case, is an unfortunate result, it probably would only be aggravated by radical measures. Incidentally, the amount of x-ray exposure used in such procedures should be exactly measured. Such factors as the quality of the x-rays employed, penetration, screening, length of exposure and extent of skin surface exposed to the rays should be accurately estimated and controlled. The statement that sixty roentgen treatments were employed implies lack of understanding of the principles involved. Under the circumstances a frank explanation of these facts to the patient and the statement that during the period from 1915 to 1920 the importance of these matters was not as well understood as it is today may clarify the situation. It is likely that little or nothing could be done at the present time to relieve the patient from this unfortunate result.

EDEMA IN ONE LEG

To the Editor:—A woman, aged 56, recovering from bronchopneumonia, has old diabetes mellitus and nephritis. The urinary sugar is 1.8 per cent.; albumin, 2.1 Gm. per thousand cubic centimeters; casts, 1 granular; specific gravity, 1.024. I cannot find a suitable diet for this condition. Also there is an edema of only one leg, the left. She shows no obstruction, pain or discoloration of the limb and feels well otherwise. Her heart is good. I cannot seem to find a reason for the edema in one leg.

Samuel S. Schept, M.D., Union City, N. J.

Answer.—It is not easy to find a suitable diet for the combination which this patient shows. Usually some sort of compromise has to be adopted. A comparatively low proportion of protein, say 50 Gm., and a relatively high proportion of fat, seem to be the best combination. Usually edema of one leg is due to local disturbance of the blood vessels; after a bronchopneumonia the patient may have had a comparatively mild thrombophlebitis of the veins of the left leg with secondary edema and without any great amount of pain or discoloration. It is difficult to figure a renal edema being unilateral.

GLYCOSURIA IN PERITONITIS

To the Editor:—A man, aged 37, came into the hospital with a perforated duodenal ulcer of fourteen hours' duration, and there was a large *amount of gastric contents in the peritoneal cavity, probably 2 quarts.* The urine showed a strong reduction of Fehling's solution and in spite of about 350 units of insulin over a period of thirty-six hours the urine reduced the Fehling's solution just as strongly as before the insulin was given. Four hours before death he went into a coma, suggesting diabetes, and his death was distinctly due to respiratory failure. There was in the past history nothing to indicate a previous diabetes, he had passed an examination for life insurance less than a year before and he was employed by one of the large oil companies requiring yearly examination; he had no polyuria, no nocturia, and no excessive thirst. He was about 5 feet 11 inches (180 cm.) tall and weighed 150 pounds (68 Kg.). Facilities for blood sugar determination are not available here. In view of these facts the question arises as to whether a large amount of irritating material in the peritoneal cavity will so irritate the pancreas as to inhibit its secretion and prevent the proper metabolism of sugar to produce this condition. Please omit name. M.D., Texas.

Answer.—According to present knowledge of the physiologic causes of sugar in the urine, peritonitis per se does not produce glycosuria. Theoretically the type of chemical irritation produced by a perforated ulcer, duodenal in particular, may in twelve or fourteen hours cause such damage to the pancreas that it is no longer able to secrete insulin. Experimental and clinical observation, however, shows that acute pancreatitis is rarely associated with the presence of sugar in the urine. In this case two explanations are possible:

1. The patient had a latent diabetes, not discovered in the course of previous examinations. The perforation and subsequent peritonitis produced a toxicity that resulted in a lowering of the renal threshold, throwing out sugar in the urine: that is, a renal glycosuria.

2. The most probable explanation is that this was a case of suprarenal glycosuria with the following mechanism: The great amount of fluid spilled into the peritoneal cavity produced a direct or reflex stimulation of the sympathetic nervous system, which in turn affected the suprarenal glands and an abnormal amount of epinephrine was thrown into circulation, resulting in a mobilization of sugar from the glycogen of the liver and muscles. The blood sugar in this type of glycosuria becomes high and it is also refractory to insulin therapy.

TREATMENT OF EMPYEMA

To the Editor:—In THE JOURNAL, Dec. 26, 1931, Dr. Hedblom mentions the use of "acid pepsin solution" as recommended by Hermannsdorfer for the purpose of destroying necrotic materials in an empyema. A patient, aged 58, in whom an empyema (nontuberculous) developed one and a half years ago following a thoracotomy for a fibroma of the mediastinum, which was successfully removed, is still being drained. Surgical solution of chlorinated soda of 0.5 to 1.5 per cent has been used several times daily since its development by irrigation through a catheter. The cavity is of about 150 cc. capacity and permits the entrance of a catheter 9 inches long. On several occasions, small pieces of bone have been removed through the catheter by aspiration. It is safe to assume that other pieces of bone too large to be aspirated through a catheter still remain in the cavity. The patient is otherwise in good general health. Is the use of acid pepsin solution indicated? If so, please give in detail the technic for preparing and using this solution. Can the chlorine solution be safely used in conjunction with it or would physiologic solution of sodium chloride be indicated? Please omit name. M.D., Illinois.

ANSWER.—If an acute empyema is treated by aspiration of the pus and irrigation of the cavity through a small tube, introduced through a stab wound, and fibrin interferes by plugging the tube, the fibrin may be dissolved by the introduction of acid pepsin.

A chronic empyema cavity that contains sequestered bone should be explored and all foreign material removed. Then a thoracoplasty may be done, or the thoracotomy opening may be sutured and irrigation continued. Eventually, it is usually necessary to mobilize the chest wall sufficiently to obliterate a residual cavity. Any empyema cavity treated by irrigation should be kept empty of pus all the time, which means thorough irrigation until the fluid comes back clear every two hours during the day and twice during the night.

PSYCHIC DISTURBANCE OR PHYSICAL CHANGE?

To the Editor:—Will you kindly advise me concerning the following case, as to a possible cause, prognosis, recurrence and treatment: A woman, aged 53, a trained nurse and medical missionary, suffered complete loss of memory from 7 a. m. to 1:30 p. m. The patient has been married for twenty years and has two sons, the younger 15 years of age. She lives at an altitude of 7,500 feet, 2 degrees south of the equator, works mainly with the Africans, has been here a little more than four years without a return to America, is tired much of the time and is nervous and irritable. At the time of the lapse of memory, her husband was away for just a few days on mission business. He is often away at times thus and there was no particular cause for worry. She wanted to know where her husband was and why he was away, though she knew all about it when he left; she kept saying the same thing over and over again, worried about herself and thought she was insane. A local physician told me that he has many such cases, especially in nervous women who may be physically normal otherwise. M.D., East Africa.

ANSWER.—The facts given are not sufficient to justify a conclusion as to the nature and cause of the condition. The concomitant facts of fatigue, nervousness and irritability would arouse a suspicion of a functional or psychogenic disturbance, but it would be essential to exclude organic factors such as cerebral arteriosclerosis at this age. In view of the mode of life that is described, it is possible that the relative isolation and monotony, with the absence of familiar contacts and relaxations, may be important, particularly during the period of the climacteric; it is also possible that the altitude may play a part in one not accustomed to it. In some respects, except for the acute episode described, there is some suggestion of the attacks of depression that are not uncommon in the period of involution. Without more knowledge of the facts it is perhaps unwise to make suggestions concerning treatment, but the most obvious suggestion is that a period of vacation in more usual surroundings would be advisable.

CARMINE AS A FACE ROUGE

To the Editor:—Can you give me information about the toxicity and absorbability of carmine when used as a face rouge? Is it injurious to the skin? Please omit name. M.D., Connecticut.

ANSWER.—Carmine is made from cochineal, derived from the dried bodies of insects that live on certain cactus plants. Cochineal has no proved medicinal or toxic properties and is used for coloring medicinal tinctures and many food products. The only possible harm that could come from carmine would be due to sensitization of the skin to it, which is unlikely but not impossible. The patch test might be tried on a patient's arm. Some carmine is dissolved in a little water, a small piece of cotton is soaked in it, and the cotton is fastened on the arm with adhesive plaster. A control test is made with cotton soaked in plain water or physiologic solution of sodium chloride. If, after forty-eight hours or less, there is found a patch of dermatitis under the carmine cotton and not under the control or under the adhesive plaster, the patient is sensitized to carmine. A negative result does not disprove sensitization, for it may be localized to small parts of the skin. The test should be repeated on the patient's cheek. If negative here, the irritation was not due to carmine.

INTERPRETATION OF DIAGNOSTIC TESTS FOR SYPHILIS

To the Editor:—I should like to know the exact interpretation of a negative Wassermann, positive Kahn and 4 plus Kolmer reaction as a blood reading in a Negress, aged 28. Is the usual antisyphilitic treatment indicated in this type of patient on the strength of the blood examination? Please omit name. M.D., Arizona.

ANSWER.—A repeatedly positive Kahn and 4 plus Kolmer reaction must be interpreted as indicating the presence of syphilitic infection. It is assumed that yaws and leprosy are excluded from the diagnosis. Whether or not the usual antisyphilitic treatment is indicated is a purely clinical problem and cannot be answered without considering the various manifestations presented by the patient, especially as to the nature of the lesions and the existence of pathologic conditions that might render treatment inadvisable. Only a careful clinical study of a patient can enable one to decide this matter.

PREMATURE MENOPAUSE FOLLOWING IRRADIATION

To the Editor:—A woman, aged 26, because of intractable dysmenorrhea and metrorrhagia submitted to high voltage roentgen exposure of the ovaries on the advice of a gynecologist. Treatment was instituted at the beginning of April, 1931, and finished at the end of the same month. The menses promptly ceased. In July she began to manifest menopausal changes (hot flashes, irritability, nervousness and loss of libido). Is there any hope that this change is temporary and that the patient will menstruate once more? Is it possible for her to ovulate at this time without menstruating? Will the parenteral or oral administration of female sex hormone, theelin or amniotin relieve the distressing vasomotor instability? Can you offer any advice or therapy for this unfortunate woman? Please do not mention name. M.D., New York.

ANSWER.—Small doses of x-rays or radium are approved by some leading gynecologists, but the majority are still reluctant to use this form of therapy in young women. The patient apparently received more roentgen therapy than was intended; despite this, there is a fair prospect that the ovaries will again become active. If there is a return to normal activity it will probably occur within a year or a year and a half. The remedies mentioned are worthy of a trial, although the results thus far obtained have been only fairly satisfactory.

PSEUDOREACTION IN SCHICK TEST

To the Editor:—I have two patients, girls about 8 years of age, who were Schick positive six months after toxin-antitoxin (Parke, Davis & Co., prepared with goat serum). The reaction was marked, probably 3 inches in diameter, red, swollen and indurated. They received another course of toxin-antitoxin. Now, a year later, their reaction to the Schick test is a hard, red swelling occupying two thirds of the volar surface of the forearm, quite tender, and after four days only beginning to recede. This second reaction to the Schick test is more severe than the first. Are they to be considered still susceptible to diphtheria? Should more toxin-antitoxin be given? Would this reaction be considered evidence of allergy? Please omit name. M.D., Michigan.

ANSWER.—The reaction described is probably a pseudoreaction. As a rule a pseudoreaction develops quickly with more swelling than in the true reaction and fades quickly, disappearing usually in two or three days. The true reaction develops more slowly, reaches its height in two or three days, and fades gradually, so that some redness usually remains at the end of a week. The redness fades gradually, [illegible] there remains a brownish area over which a slight scaling is common. There are instances in which the pseudoreactions are so confusing that it is difficult to decide whether or not a person is immune. In such cases, by means of the Römer test in guinea-pigs, it is possible to determine the amount of antitoxin in the individual's blood, and so to know whether this is at least 0.04 unit per cubic centimeter, which is needed for protection.

HAND DRYING LOTION

To the Editor:—Some teachers in an elementary school near here have asked me for a formula of a hand drying lotion to use, as they have to wash their hands so many times a day in water that is very hard

Alice S. Cutler, M.D., Los Angeles.

Answer.—A drying lotion may be made of:

	Gm. or Cc.
Powdered tragacanth	2
Glycerin	
Alcohol	āā 25
Rosewater	ad 120

The tragacanth is shaken with the mixture of alcohol and glycerin, coating the inside of the bottle and the stopper. Then the rose water is added in very small amounts, the mixture being shaken vigorously each time until all has been added. The lotion is allowed to stand for twenty-four hours. A very small amount of this lotion rubbed on the hands while they are yet moist will tend to prevent drying. If too much is used, a temporary stickiness will be experienced which, however, disappears when the hands become dry. Other perfumes may be used as desired.

Should this mixture be found too dehydrating because of the amount of glycerin present, the following formula, which appears on page 45 of the Technic of Medication, published by the American Medical Association, may be substituted:

	Gm. or Cc.
Oil of rose	0.05
Oil of lavender	0.10
Oil of bergamot	0.20
Tragacanth	5.00
Boric acid	15.00
Glycerin	15.00
Water, to make	1,000.00

PYELITIS IN PERNICIOUS ANEMIA

To the Editor:—In The Journal, Dec. 19, 1931, p. 1912, it is stated that "it is important to remember that infections, such as pyelitis, can inhibit the action of the active principle effective in pernicious anemia." Can you furnish references in the literature relative to this statement?

Edmond Bechtold, M.D., Belleville, Ill.

Answer.—Minot and Murphy in their original paper concerning the treatment of pernicious anemia with liver indicated that infection could inhibit the effectiveness of this treatment. Since then, a large number of papers concerning the effect of liver, liver extracts and other potent substances in pernicious anemia have described or commented on the fact that infection inhibits the effect of treatment. Synopses of a large number of these articles are given in the annual reviews concerning the blood in Nelson's Loose Leaf Medicine.

A few pertinent references are:

Beebe, R. T., and Lewis, G. E.: The Maintenance Dose of Potent Material in Pernicious Anemia, *Am. J. M. Sc.* **181**:796 (June) 1931.

Smithburn, K. C., and Zerfas, L. G.: The Inhibitory Action of Infection and Fever on the Hematopoietic Response in a Case of Pernicious Anemia, *Ann. Int. Med.* **4**:1108 (March) 1931.

Minot, G. R.: Some Fundamental Clinical Aspects of Deficiencies, *Ann. Int. Med.* **3**:216 (Sept.) 1929.

Minot, G. R., and Castle, W. B.: The Adequate Treatment of Anemia, *Ann. Int. Med.* **5**:159 (Aug.) 1931.

HYPERKERATOSIS

To the Editor:—A woman, aged 30, has been troubled for two years with cracking of the skin on the flexor surfaces of the hands (palms) and extensor surfaces (soles) of the feet, occurring at the last month of pregnancy; there is slight itching at times; a child of 4 years is beginning to have the same condition. I should appreciate advice as to diagnosis and subsequent treatment. Please omit name.

M.D., District of Columbia.

Answer.—This may be an acquired hyperkeratosis, the result of local irritation and excessive dryness of the skin. The fact that the same condition is developing in the child suggests the possibility of the rare form of congenital palmar and plantar keratoderma. The eczema may be secondary to an epidermophyton infection. Mildly stimulating ointments containing tar or salicylic acid (from 2 to 4 per cent) may be tried. Roentgen therapy in small doses, from one-eighth to one-fourth skin unit once weekly, is frequently successful.

Council on Medical Education and Hospitals

COMING EXAMINATIONS

American Board for Ophthalmic Examinations: New Orleans, May 9. Montreal, Sept. 19. Sec., Dr. William H. Wilder, 122 S. Michigan Ave., Chicago.

American Board of Obstetrics and Gynecology: Written examinations will be held in nineteen cities of the United States and Canada, March 26. The general, oral and clinical examination will be held in New Orleans, May 10. Sec., Dr. Paul Titus, 1015 Highland Building, Pittsburgh.

American Board of Otolaryngology: New Orleans, May 9. Sec., Dr. W. P. Wherry, 1500 Medical Arts Bldg., Omaha.

Arizona: Phoenix, April 5-6. Sec., Dr. B. M. Berger, 12 N. Central Ave., Phoenix.

Arkansas: *Basic Science.* Little Rock, May 2. Sec., Mr. Louis E. Gebauer, 1002 Donaghey Bldg., Little Rock. *Regular.* Little Rock, May 10-11. Sec., Dr. Sam J. Allbright, Searcy. *Eclectic.* Little Rock, May 10. Sec., Dr. Claude E. Laws, 803½ Garrison Ave., Fort Smith. *Homeopathic.* Little Rock, May 10. Sec., Dr. Allison A. Pringle, Eureka Springs.

Colorado: Denver, April 6-9. Sec., Dr. Wm. Whitridge Williams, 422 State Office Bldg., Denver.

Idaho: Boise, April 5. *Comm. of Law Enforcement, Hon. Emmitt* Pfost, Boise.

Illinois: Chicago, April 12-14. Supt., Mr. Paul B. Johnson, Springfield.

Minnesota: *Basic Science.* Minneapolis, April 5-6. Sec., Dr. J. C. McKinley, 125 Millard Hall, University of Minnesota, Minneapolis. *Regular.* Minneapolis, April 19-21. Sec., Dr. E. J. Engberg, 524 Lowry Bldg., St. Paul.

Montana: Helena, April 5. Sec., Dr. S. A. Cooney, Power Block, Helena.

Nebraska. *Basic Science.* Omaha, May 3-4. Dir., Mrs. Clark Perkins, *Lincoln.*

Nevada Carson City, May 2-4. Sec., Dr. Edward E. Hamer, Carson City.

New Mexico: Santa Fe, April 11. Sec., Dr. P. G. Cornish, Jr., 221 W. Central Ave., Albuquerque.

Rhode Island: Providence, April 7-8. Dir., Dr. Lester A. Round, 319 State Office Building, Providence.

Wisconsin: *Reciprocity.* Milwaukee, April 6. Sec., Dr. Robert E. Flynn, 315 State Bank Bldg., LaCrosse.

MEETING OF THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

The Council on Medical Education and Hospitals met in connection with the Annual Congress on Medical Education, Medical Licensure and Hospitals at the Palmer House, Chicago, February 15 and 16.

Following are some of the transactions of the meeting:

The list of physicians specializing in pathology and in clinical pathology (401) and the list of physicians specializing in radiology (1001) have been under revision during the past year, and certain additions and removals were approved by vote of the Council. The Council approved changes in the "Essentials" for admission to these lists which under the revision places the emphasis on the qualifications of the specialist rather than on the laboratory.

The "Essentials of a Registered Hospital" were revised and adopted.

All of the foregoing revised "Essentials" will be submitted for publication in appropriate issues of The Journal.

Approval for internships and for residencies were granted as follows:

Hospitals Approved for Intern Training:

- Baptist State Hospital, Little Rock, Ark.
- Women and Children's Hospital, Chicago.
- Woodlawn Hospital, Chicago.
- Protestant Deaconess Hospital, Evansville, Ind.
- Norton Memorial Infirmary, Louisville, Ky.
- Leila Y. Post Montgomery Hospital, Battle Creek, Mich.
- St. Louis County Hospital, Clayton, Mo.
- Highsmith Hospital, Fayetteville, N. C.
- Davis Hospital, Statesville, N. C.
- St. Rita's Hospital, Lima, Ohio.
- St. Elizabeth's Hospital, Youngstown, Ohio.
- Misericordia Hospital, Milwaukee.
- St. Luke's Hospital, Milwaukee.

Hospitals Approved for Residencies in Specialties:

- Compton Sanitarium, Compton, Calif.
- Orthopaedic Hospital-School, Los Angeles.
- Cook County Tuberculosis Hospital, Oak Forest.
- Boehne Tuberculosis Hospital, Evansville, Ind.
- Central State Hospital, Indianapolis.

Community Hospital, Beloit, Kan.
Jackson Memorial, Boston Floating Hospital, Boston.
St. Mary's Hospital, Grand Rapids, Mich.
Sunshine Sanatorium, Grand Rapids, Mich.
Kalamazoo State Hospital, Kalamazoo, Mich.
Morgan Heights Sanatorium, Marquette, Mich.
Ypsilanti State Hospital, Ypsilanti, Mich.
St. Louis County Hospital, Clayton, Mo.
State Hospital No. 3, Nevada, Mo.
State Hospital No. 2, St. Joseph, Mo.
Grasslands Hospital, Valhalla, N. Y.
City-County Hospital, Fort Worth, Texas.
Hermann Hospital, Houston, Texas.
St. Joseph's Hospital, Milwaukee.

The Council adopted the policy of having hospitals personally examined for registration as well as for approval, as far as resources permit. Changes in the Register, affecting the status of certain hospitals, were presented to the Council and adopted. These changes are based on personal visits and other means of communication with the hospitals.

Nebraska November Examination

Mrs. Clark Perkins, director, Bureau of Examining Boards, Nebraska Department of Public Welfare, reports the written examination held at Lincoln, Nov. 23-24, 1931. The examination covered 10 subjects and included 96 questions. An average of 75 per cent was required to pass. Ten candidates were examined, all of whom passed. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent
State University of Iowa College of Medicine	(1930)	85.2
Creighton University School of Med..(1930) 77.5, 87,	(1931)	86.8
University of Nebraska College of Medicine	(1929)	84.4, (1931) 79.3, 80.6, 81.4, 81.8, 84.9

Mrs. Perkins also reports 6 physicians licensed by reciprocity with other states and 2 physicians licensed by endorsement from July 27 to Nov. 6, 1931. The following colleges were represented:

LICENSED BY RECIPROCITY

College	Year Grad.	Reciprocity with
State University of Iowa College of Medicine	(1927)	Iowa
Creighton University School of Medicine	(1929)	Kansas
University of Nebraska College of Med.	(1929)	Michigan, Montana
University of Pittsburgh School of Medicine	(1926)	Penna.
University of Wurzburg Faculty of Medicine	(1922)	Iowa

LICENSED BY ENDORSEMENT

College	Year Grad.	Endorsement of
Harvard University Medical School	(1929)	N. B. M. Ex.
University of Nebraska College of Medicine	(1930)	N. B. M. Ex.

Wisconsin October Report

Dr. Robert E. Flynn, secretary, Wisconsin State Board of Medical Examiners, reports 8 physicians licensed by examination, 35 physicians licensed by reciprocity with other states and 2 physicians licensed by endorsement of credentials at a meeting held in Milwaukee, Oct. 21, 1931. The following colleges were represented:

LICENSED BY EXAMINATION

College	Year Grad.	Number Examined
Northwestern University Medical School	(1931)	1
Marquette University School of Medicine	(1931, 5)	5
University of Wisconsin Medical School	(1929), (1930)	2

LICENSED BY RECIPROCITY

College	Year Grad.	Reciprocity with
Chicago College of Medicine and Surgery	(1916)	Illinois
Loyola University School of Medicine	(1930)	Illinois
Northwestern Univ. Med. School	(1916), (1930), (1931, 3)	Illinois
Rush Med. College....(1915) Iowa, (1924) N. Dakota,	(1929)	California, (1929), (1931) Illinois
University of Illinois College of Medicine	(1929), (1930)	Illinois
Indiana University School of Medicine	(1921), (1930)	Indiana
Harvard University Medical School	(1915)	Minnesota
University of Michigan Medical School	(1928), (1929, 2)	Michigan
University of Minnesota Medical School	(1930, 2) (1931)	Minnesota
St. Louis University School of Medicine	(1920)	Iowa
Washington University School of Medicine	(1929, 2)	Missouri
Creighton University School of Medicine	(1927)	Nebraska
University of Nebraska College of Medicine	(1930)	Louisiana
University of Buffalo School of Medicine	(1917)*	New York
University of Wisconsin Medical School	(1929)	Kansas, Utah, (1930) Missouri
Dalhousie University Faculty of Medicine	(1926)	Minnesota
University of Toronto Faculty of Medicine	(1924)*	Minnesota
University of Göttingen Faculty of Medicine	(1923)*	New York

LICENSED BY ENDORSEMENT

College	Year Grad.	Endorsement of
Northwestern University Medical School	(1930)*	N. B. M. Ex.
University of Minnesota Medical School	(1931)	N. B. M. Ex.

* Licenses are being withheld pending completion of their credentials.

Book Notices

Fundamentals of Orthopædic Surgery in General Medicine and Surgery (Harvard Lectures). By Robert B. Osgood, M.D., F.A.C.S., Consulting Surgeon, Boston Children's Hospital, and Nathaniel Allison, M.D., F.A.C.S., Professor of Surgery in Charge of the Division of Orthopædic Surgery, University of Chicago. Cloth. Price, $3. Pp. 311. New York: Macmillan Company, 1931.

The purpose of this collection of lectures, by two leading orthopedic surgeons, is to make available to the advanced medical student and general practitioner information as to the diagnosis and the immediate treatment of diseases and lesions falling in the domain of orthopedic surgery. The authors emphasize those contacts between orthopedic surgery and general medicine and general surgery which every physician encounters. The subject matter should enable the practitioner to apply intelligent "first aid" and to recognize the nature of the lesion or the presence of the underlying disease.

The authors became convinced eight years ago that the purely didactic lecture was inefficient. For six years with several rewritings they have presented these lectures to the students. They believe that in the four year medical course the student should be taught only enough of the recognized specialties of medicine and surgery to enable him to meet the demands of general practice with intelligence and safety. They believe that full class exercises in a specialty should include such teachings in the fundamentals as well enable the practitioner to make reasonably accurate diagnoses and recognize certain conditions which demand immediate and appropriate treatment. These exercises should be supplemented by clinical work with small sections. The lectures were written as clearly and simply as possible, with a few contributory references for those who desire more detailed information. They express their acknowledgment of indebtedness to the late Dr. Robert W. Lovett, much of whose thought and some of whose actual writings are included in the text.

The lectures were separately mimeographed and delivered to each student one week before the whole class exercise at which the subject was to be discussed. The students were requested to read each lecture before coming to the exercise, take whatever notes they desired, and hand the signed copies back before the given exercise.

The hour of the exercise was divided into three periods of approximately twenty minutes each. The first period was called the visual approach, the second period the deductive approach, and the third period the eductive approach. During the first period the subject was amplified by the exhibition of illustrative clinical cases, pathologic specimens and lantern slides. During the second period the students were permitted to ask the lecturer questions concerning the previous written lecture and clinical demonstration. During the third period the instructor selected students at random from a class list, quizzed them on information contained in the written lecture, and gave them an approximate mark on their answers.

They believe that a surgical specialty such as orthopedic surgery should always be considered as a part of general surgery. It should be based on and strictly follow the principles that govern general surgery. They state that orthopedic surgery includes the congenital and acquired deformities of the skeleton, certain diseases and injuries of the bones and joints, certain disturbances of the neuromuscular mechanism of the body, and static disabilities and deformities. The prevention and correction of deformity and disability in the motor mechanics of the body is a recognized field of orthopedic surgery.

The twelve lectures include general joint phenomena; the reactions of developmental and adult bone, nutritional and growth disturbances; congenital deformities, cerebral and spastic palsy; obstetric paralysis; Volkmann's deformity and Dupuytren's contracture; scoliosis; tuberculosis; anterior poliomyelitis; chronic rheumatic arthritis; traumatic disorders of joints and bursae; the relation of orthopedic surgery to industry and body mechanics and statics.

The three main causes for tissue changes in the bones and joints, including trauma, infection and toxins, are outlined. Joints react to irritation by synovial hyperemia, swelling, increased joint fluid and loss of function. Arthritis is divided into type I, atrophic arthritis, and type II, hypertrophic arthritis.

It is disappointing not to find brief descriptions of operations and the application of plaster-of-paris casts. These are given in other parts of the course. The subject of orthopedic surgery cannot be covered in twelve lectures; it requires about twenty sessions. One should discuss the question of supplementary operations, recumbent treatment, the application of plaster-of-paris technic and the use of braces and splints. Many orthopedic conditions are not covered in the lectures. The meager description of Osgood-Schlatter's disease, and especially the treatment, is disappointing. So is the short description of treatment of other types of epiphyseal disturbances. It is surprising that there is no mention of convalescent serum in the treatment of infantile paralysis even though it is not usually administered by the orthopedic surgeon. The description of treatment of apophysitis of the tibial tubercle is too short. There is an objection to the term "obstetrical paralysis" because of its similarity to the term "obstetrician." No mention is made of Kanavel's important work on Dupuytren's contracture.

In the lecture on poliomyelitis, the authors state definitely that the orthopedic surgeon has no part to play in the first few days of the disorder before paralytic symptoms appear. This conception is not universally held.

When one considers the authoritative writings of the two authors, one expects to learn from this book the last word on such subjects as upper tibial epiphysitis, bursitis in the region of the elbow, and arthritis, which are the pet subjects of the senior author; and general orthopedic pathology, tuberculosis of the knee, and atrophy of bone and synovial fluid, which are the favorite subjects of the junior author.

The book presents an interesting pedagogic experiment. It would be interesting to hear the comments of the medical students comparing these with lectures in other subjects. The brief historical notes serve to increase the interest in the subject. A short bibliography is appended to each chapter. The publisher's work is good. The book should be of value to interns and general practitioners and may well serve as a guide to teachers of orthopedic surgery.

Ein bewegtes Gelehrtenleben: Erinnerungen und Erlebnisse. Kämpfe und Gedanken. Von Otto Lubarsch. Paper. Price, 18 marks. Pp. 606, with a portrait Berlin: Julius Springer, 1931.

"What a battle!" might well epitomize this work, in which Lubarsch reveals his reaction to his environment; his motives, his weaknesses, his triumphs. It is more than sturdy independence that brought him into conflict at almost every point of contact—a strong sense of justice, a feeling for the underdog, perhaps a sharpened sensitivity, all contributed. By inheritance he has an understanding for the Semitic, by environment and education a love for the Germanic, by profession an appreciation of the international point of view on many subjects; such backgrounds for a strong personality inevitably lead the possessor into acute situations—situations which might not even arise for an individual of simpler pattern and, if encountered, ordinarily circumvented. Lubarsch seems never to have compromised. That in itself is genuinely refreshing to those who may be surfeited on our vaunted ability to compromise and keep things political, academic, industrial, running "smoothly" in America. Lubarsch would never have been recommended as a pathologist by any of our foundations. It speaks well for Althoff (the influential adviser for medical affairs in the ministry of education) that he repeatedly tried to put Lubarsch on the road to academic success despite his reputation as an *enfant terrible*. Althoff's support usually shattered on the resistance of individual faculties. As a matter of fact, it was twenty-three years from the time of his habilitation until he received his academic professorship at Kiel, although in the interim he held government appointments at Posen and at Düsseldorf. There is much of Virchow in Lubarsch, despite superficial dissimilarities. Both men were of indefatigable energy, were interested in social and political life, were interested in the fundamental problems of their profession, and uncompromising idealists. Virchow, of course, was an opponent of the aristocratic tradition in life because he saw about him the faults of too much aristocracy. Lubarsch has become an opponent of democracy because he sees the serious faults of too much democracy. Neither men concealed their point of view under academic robes. Lubarsch does not write much about his own work and that is perhaps as it should be. Others may do that well but no one can write of the mental reactions of Lubarsch, and this is done in so straightforward and honest a fashion that it becomes a really valuable document of the day. It is a lengthy record and not suited for rapid perusal, but the initiated will derive much pleasure. The pathologist who is interested only in pathology may find it tedious.

A Compendium of the Statute Law of Coroners and Medical Examiners in the United States. By George H. Weinmann, LL.B., Attorney and Counselor at Law. Issued under the Auspices of the Committee on Medicolegal Problems. Bulletin of the National Research Council, Number 83. Paper. Price, $3. Pp. 240. Washington, D. C.: National Research Council, 1931.

This is the third of a series of projects undertaken under the auspices of the committee on medicolegal problems of the National Research Council. The first was an investigation of the functioning of the offices of coroner and medical examiner, by O. T. Schultz and E. M. Morgan. The second was a survey of the law of the dead human body, by the author of the present study.

This volume brings together the laws relating to the coroner and medical examiner in the various jurisdictions of the United States. It considers these laws under the five main subject headings of selection, qualification, and tenure of office of the coroner; deputy coroners; powers and duties of the coroner; compensation and fees; and medical examiners. Under each heading the basic common law principles are briefly discussed, the relevant legislative enactments in each jurisdiction are quoted, and court decisions that have modified or defined the common law or statutory provisions are cited.

The office of coroner has been established by the state constitution of some states and by legislative enactment in other states. Although the office seems to be considered sacrosanct by some, the coroner is not an indispensable official. Even in states that have not replaced him by the medical examiner, the duties of coroner may be performed by justices of the peace, as in Arizona and Florida, or by the county attorney, as in Nebraska and Washington.

No qualifications, other than those of the ordinary voter, are required of the coroner in most states. A few specify that he shall not practice law while serving as coroner. In Louisiana and Virginia the coroner must be a physician qualified to practice medicine. In Michigan, medical qualifications are required of the coroners of counties with a population of 250,000 or more, in Ohio in counties of 100,000 or over. The Alabama code contains the curious provisions that any qualified elector may be coroner of a county with a population of 200,000 or more, but that in counties with from 95,000 to 195,000 inhabitants the coroner must be a physician.

The most important magisterial duty of the coroner is the holding of inquests. Deaths that must be referred to the coroner in general fall into two distinct groups, namely, those due to violence, and sudden deaths of persons not attended before death by a licensed physician. In the holding of inquests the coroner is limited by the statutes of practically all states to deaths presumably due to violence. Some states make still further restrictions, in that death must be due to the violence of another, or must presumably be felonious in character, or must not be due to casualty. In certain states (Iowa and Missouri) the coroner is required to hold an inquest in nonviolent deaths if an inquest is requested by the relatives; the latter, however, become responsible for the costs of the proceeding if death is found not to have been due to violence. In Connecticut, New York, Oregon and Rhode Island the coroner holds antemortem inquests in the case of those seriously wounded by another.

Whereas the holding of the inquest is the most important magisterial or legal duty of the coroner's office, the performance of necropsy for the purpose of determining the cause of death is the important medical function of the office. The statutes and court decisions quoted establish quite clearly that the coroner has no authority to perform or order a necropsy in any given instance unless he has the power to hold an inquest on the body. The coroner's office, therefore, has only limited value as an agency for the determination of causes of death, since in most jurisdictions half or more than half of the deaths referred to the coroner are not due to violence.

The final section quotes fully the laws of those jurisdictions that use the medical examiner system. In his opening paragraph, as well as in a concluding one, Weinmann intimates that these laws have merely changed the name of an official from coroner to medical examiner. This is a view that many members of the legal profession seem to hold. But it will be apparent to any one who reads the medical examiner acts of Massachusetts, New Jersey and New York that these laws do more than merely make a change in name. They replace an antiquated system, incapable of adapting itself to modern conditions, by a mode of procedure that recognizes the importance of the medical duties that the coroner should perform. They define the duties of the medical examiner much more precisely than does any law relating to the coroner, and they transfer the magisterial duties to existing agencies of justice much better qualified to perform those duties than is the coroner's office. The New Jersey act of 1927 should serve as a model to any community that proposes to take this forward step.

In discussing the admissibility in evidence of the medical examiner's necropsy report, Weinmann says that such a document is not admissible "in the absence of a statute expressly making such report admissible. At the present writing, however, there appears to be no such statute." The second paragraph of section 6 of the New Jersey act, quoted by Weinmann on page 220, does expressly provide that the records of the medical examiner or certified transcripts thereof "shall be received as evidence in any court in this state of the matters and facts therein contained."

Reform of the coroner's office should receive much more serious attention than it does receive. Weinmann has done a service of great value in bringing together the laws relating to the office. The student of the medicolegal problems presented by the coroner's office obtains a much better grasp of the subject than has heretofore been possible. The leader of public opinion who may desire to direct that opinion along a line that will prove beneficial to society will find the volume useful. It is recommended to the medical and legal professions as a store of information on a subject concerning which most of the members of those professions have little accurate knowledge. A subject index and a geographic index make reference easy.

Praktische Differentialdiagnostik für Ärzte und Studierende. Herausgegeben von Professor Dr. Georg Honigmann. Band VII: Differentialdiagnostik in der Pädiatrie. Von Dr. med. Walter Pflüger, Facharzt für Kinderkrankheiten in Stuttgart. Mit einem Vorwort von Prof. Dr. med. Joseph Husler, Leiter des Kinderkrankenhauses München-Schwabing. Paper. Price, 11.50 marks. Pp. 160. Dresden: Theodor Steinkopff, 1931.

This is the seventh and concluding volume of a comprehensive work on practical differential diagnosis. The editor, Prof. Dr. Georg Honigmann, died before it was completed. The volume is edited by Dr. Walter Pflüger of Stuttgart and Prof. Dr. Joseph Husler of Munich. The book is a valuable addition to pediatric textbooks and is especially designed for the general practitioner and student rather than the specialist. The information regarding differential diagnosis is easily available and concise: in the chapter on the new-born, the differential diagnosis on the causes of asphyxia is discussed, then on the causes of convulsions, then icterus, swellings of the head, fever in the first week, bloody stools and hematemesis. Another example of the method of differentiation may be cited from the section on the kidney: disturbances in urine secretion are differentiated, cause of polyuria, causes of anuria, enuresis, differentiation of causes of bacteriuria, and pus in the urine, hematuria and hemoglobinuria. In the chapter on the exanthems the fine rashes, as scarlet fever, German measles, fourth disease, syphilis and sunburn, are differentiated. Then the coarser rashes are distinguished from one another, as measles, infectious erythema, urticaria and drug rashes. Then the exanthems with pustules, such as varicella, variola, pemphigus and impetigo, are differentiated. Most conditions are grouped and differentiated on the basis of symptoms or obvious manifestations revealed by physical or laboratory examination. The anemias, however, are differentiated on the basis of pathogenesis. The volume is well worth having in one's library.

The Wills Hospital of Philadelphia: The Influence of European and British Ophthalmology Upon It, and the Part It Played in the Last 100 Years in Developing Ophthalmology in America. By William Campbell Posey, B.A., M.D., Consulting Surgeon to the Hospital, and Samuel Horton Brown, M.D. Cloth. Price, $5. Pp. 340, with illustrations. Philadelphia: J. B. Lippincott Company, 1931.

To one who practices ophthalmology for the sake of ekeing out an existence, the purchase and reading of this book would be futile. But to the man who is interested in his profession, who has a pride in the development of American ophthalmology and who likes to be a bit of the yeast that ferments international ophthalmology, this book is a treat. As the subtitle says, it shows the influence of European and British ophthalmology on Wills Hospital and the part it played in the last hundred years in developing ophthalmology in America. The founding and history of the institution are taken up at length, together with a description of the old buildings and finally with the projected new building. Then there are short biographic sketches of the various surgeons who have been identified with the hospital. The instruction given by the hospital is touched on and its character is mutely vouched for by the list of former residents who are now making ophthalmologic history in this country. The various types of operations that have been and still are being performed at Wills are described, together with most illuminating historical comments. There follows then a list of books written since the inception of the hospital by various members of the staff. The spirit of Wills Eye Hospital is not mentioned, but it is that modest self-effacing spirit which made Wills Eye Hospital the cradle of American ophthalmology and that has guided American ophthalmology through the dangers of puberty and adolescence to the robust manhood it now presents. All credit is due to the chroniclers for the enormous amount of work the making of this book entailed and for the interesting presentation of material that all American ophthalmologists should know.

Lehrbuch der klinischen Untersuchungsmethoden für Studierende und praktische Ärzte. Band II, Hälfte 2. Von Prof. Dr. H. Sahli. Seventh edition. Paper. Price, 30 marks. Pp. 369-686, with illustrations. Leipzig: Franz Deuticke, 1931.

This section of the second volume of Sahli's revised textbook is divided into discussions of hematology, blood chemistry and serology. The treatment of the subject of hematology is handled in a refreshing manner. It is not a mere cataloguing of detailed facts but a clear and concise discussion of the principles, significance and interpretation of the data presented. The author has chosen the discourse method of presenting the subject and it is well executed. The necessity of rendering hematologic facts more dynamic is stressed, and overemphasis of the significance of changing blood pictures in infectious diseases is avoided. The chapters dealing with blood chemistry and serology are well covered but are not as up to date as some of the recent textbooks on the same subject. In general, the material is treated in a clear and concise manner and is well handled. The book is not recommended for those who possess only an elementary training in laboratory diagnosis, as much of the text presumes a familiarity with the subjects considered.

Heredity. By A. Franklin Shull, Professor of Zoölogy in the University of Michigan. Second edition. Cloth. Price, $3. Pp. 345, with 143 illustrations. New York: McGraw-Hill Book Company, Inc., 1931.

The first edition of this textbook, published in 1926, was intended to give a scientifically adequate presentation of the principles of genetics, and of the bearing of these on problems of human society, to readers who had no previous knowledge of the subject. It has been generally recognized to have been admirably successful in this aim. The second edition has been extensively revised. Certain rather technical subjects have been introduced because of recently demonstrated applications to human heredity. The discussion of heredity in man has been considerably enlarged and the discussion of population and the immigration question brought down to date. Problems have been introduced in the fundamental parts to increase the usefulness as a textbook. Numerous other minor changes have been made. One feature that deserves attention is the constant emphasis on the physiologic nature of the activity of the hereditary units. Research in genetics has been largely concentrated on the problem of the mechanism of transmission, and only recently has attention begun to be directed on problems of gene action. Characteristics have been looked on as merely more or less convenient indicators of the presence or absence of the ultimate units. In consequence, geneticists have often fallen into a loose way of speaking of particular genes as if they were representative of particular characters. It has been well known, of course, that gene and character are not related in any one-to-one fashion. Whatever the immediate effects of each gene may be, these have ramifying consequences which ultimately touch many physiologic processes, including ones of which organic structure may be a by-product. Each gene replacement in general has multiple effects and, conversely, any assignable characteristic is affected by many genes. Professor Shull is exceptionally successful in keeping this point of view before the reader and in giving due weight to environmental as well as genetic factors. The chapters on human heredity have been carefully written Characters such as eye color and feeblemindedness, which have seen long service in elementary books as examples of simple mendelian heredity, on the basis of early work, are discussed in the light of the complexity revealed by more recent researches.

Alte und neuzeitliche Ernährungsfragen unter Mitberücksichtigung wirtschaftlicher Gesichtspunkte. Von Professor Dr. Carl v Noorden, Geheimer Medizinalrat, Vorstand der Sonderabteilung für Stoffwechselstörungen und diätetische Heilmethoden des Krankenhauses der Stadt Wien. Paper. Price, 6.90 marks. Pp. 117. Berlin. Julius Springer, 1931.

This small volume is not intended to be a comprehensive work on nutrition. It is rather a critical analysis of a few phases of this subject, from a chiefly practical standpoint, and in a general rather than detailed manner. The material presented includes several chapters on the influence of diet on the acid-base balance and the mineral metabolism in man. One chapter is devoted to the place of uncooked foods in the dietary, and another to miscellaneous subjects such as adequate protein intake, the use of rye bread, coffee and substitutes for it, and vitamins. The author considers these subjects from two distinct standpoints: first, the national or racial dietary and, second, the therapeutic diet. The practical bearing of his discussion of the national dietary is, like his bibliography, almost entirely German. His observations on therapeutic diets have a much wider application. The author points out the influence of modern transportation, commercial methods, and fashions in cooking on the German dietary. He emphasizes the fact that the diet of a people or a country embodies a great deal of practical experience and is not to be tampered with lightly. He indicates certain precautionary measures that ought to be taken to keep the German dietary wholesome. While admitting and enlarging on the value of certain special diets in disease, the author deprecates the overenthusiastic application of such knowledge to the diet of the normal individual. He sounds the warning that the tried and proved dietary knowledge of the past should not be forgotten or discarded for a passing fad. He concludes that one may work harm as well as benefit by diet and that it behooves the physician to choose with care. This book hardly answers the purpose of the physician seeking a collection of dietary formulas or specific advice as to the dietary management of disease. Its breadth of outlook and maturity of judgment, however, should make it well worth the reading for those whose special interests lie in the field of dietetics and nutrition.

Evolution of Facial Musculature and Facial Expression. By Ernst Huber, Ph.D., M.D., Associate Professor of Anatomy, the Johns Hopkins University. Cloth. Price, $2.50. Pp. 184, with 28 illustrations. Baltimore: The Johns Hopkins Press, 1931.

Facial expression, momentary or permanent, plays a prominent part in human intercourse. It indicates character and gives beauty and interest to the human countenance. It also gives it individuality; people's faces differ. Each race has its characteristic "face," as have horses and dogs; and many animals are capable of much facial expression. Huber has studied the anatomic mechanism that produces this expression. He has been especially interested in its evolution, its development during childhood, and racial differences in it. It evolves in the mammals from two superficial neck muscles, both visceral in origin: the platysma (originally nuchal in position) and the sphincter colli profundus. From the first are developed the muscles behind the ear in the lower lip and the platysma of the neck; from the second are developed some intrinsic muscles of the ear, the orbicularis oculi and associated muscles, the orbicularis oris and cheek muscles and the vibrissae movers. All these muscles are characteristic of mammals and become progressively better developed from the lower to the higher orders. In the lower each forms a common mass, plastic and susceptible of development in special parts for special purposes. In each human individual it is developed entirely after birth; there is no facial expression in the new-born baby. In the first four or five years the power of expression is developed, and in these early years it works automatically. The facial expression of little children is always honest; in later life it may be intentionally inhibited by control from the cortex of the brain. This control, nonexistent in children, is susceptible of much development through practice. It is interesting to note that Huber believes that convincing facial expression must always be honest and that the only way in which great actors are able to play their emotional parts successfully is by really experiencing the emotions they seek to express. These muscles grow by exercise, accentuating the facial expressions they produce. In old age the face skin loses its elasticity: it tends to become fixed in a mask—not immovable but nevertheless a record of the prevailing emotions which have played over it through the years. The racial differences are studied in six races: White, Negro, Chinese, Hawaiian, Australian and Papua-Melanesian. They are illustrated by full page pictures, which are also assembled on one plate for comparison. Huber finds that evolution of the parts of the central nervous system which control them precedes the evolution of the facial muscles themselves. This adds strength to the view of those anatomists who believe that the central nervous system "is" the man and that the most direct study of his evolution lies in the study of the evolution of the brain. The subject is one of great interest and this publication is much the most important contribution to it that has been made in America.

Embonpoint et obésité: Conceptions et thérapeutiques actuelles. Par Jean Leray, médecin consultant à Brides-les-Bains. Préface du Dr. Chiray. Paper. Price, 20 francs. Pp. 195 Paris: Masson & Cie, 1931.

This book contains practically all the information now available on the subject of obesity. It is well put together, particularly from the clinical point of view. The pathologic and etiologic classifications might not be accepted by every one, but on the whole the book serves as an excellent review of current knowledge. It is interesting to note that almost all the literature on this subject is of recent date and includes at least some of the more important American contributions. Newburgh's latest publications are apparently too recent to be included.

Imhotep to Harvey: Backgrounds of Medical History. By C. N. B. Camac, M.D., Assistant Professor of Clinical Medicine, College of Physicians and Surgeons, Columbia University. Foreword by Henry Fairfield Osborn, Sc.D., LL.D. Cloth. Price, $3.75. Pp. 321, with 4 illustrations. New York: Paul B. Hoeber, Inc., 1931.

The notes included in this volume have been used by the author in conducting seminars in medical history in Columbia University. The classes consisted of from ten to fifteen fourth year medical students. In these seminars the associated material used is spread on a large table; the students examine the exhibits and confer concerning them. Thus medical history is made living and attractive. The book serves, therefore, as an outline of medical history from the earliest times to the end of the seventeenth century. It also provides a discussion of various schools of thought. There is an essay on the meaning of the emblem of medicine and the book includes some reprints of important historical documents of great scientific interest. Special appendixes provide chronological tables and a good bibliography. The book is handsomely printed, as are all the medical contributions which come from Mr. Hoeber's press.

A Psychiatrist's Anthology. By Louis J. Karnosh. Boards. Price, $4. Pp 36, with illustrations Cleveland: Occupational Therapy Press, 1931.

This is an artistic contribution printed by the Occupational Therapy Press. There are only 168 copies available. The book is a literary curiosity, as any volume of poems which includes words like "diencephalon" and "presbyophrenia" would have to be. The illustrations exemplify the disordered mind; the prose represents the moods of the insane. The book should be of special interest to collectors and to psychiatrists.

A Dictionary of Terms Dealing with Disorders of Speech. A Temporary and Incomplete Edition Published in Order to Invite Criticism and More Adequate Definitions, Prior to Publication of a Later Edition, to be Based on Further Study. Compiled by Samuel D. Robbins, A.M., Director, Boston Stammerers' Institute, and Sara M. Stinchfield, Ph.D., Associate Professor of Psychology, Mount Holyoke College, Members of the Nomenclature Committee of the American Society for the Study of Disorders of Speech. Paper. Pp. 27. Boston: American Society for the Study of Disorders of Speech, 1931.

This booklet, prepared under the auspices of the American Society for the Study of Disorders of Speech, is developed primarily to provide a standard nomenclature for workers in this field. Obviously the authors have given most serious consideration to the subject and are not willing to assume that they have said the last word that is to be said about it. They are willing to accept additions and corrections with a view to the eventual publication of an international edition.

Die Allgemeinerscheinungen der Hirngeschwülste. Von F. Kehrer, o. ö. Professor und Direktor des Psychiatrischen- und Nervenklinik, Münster i.W. Paper. Price, 10 50 marks. Pp. 116, with 11 illustrations. Leipzig: Georg Thieme, 1931.

This monograph probably clarifies the diagnosis of brain tumors in the author's own mind much more than it adds anything to the knowledge of intracranial tumors. He has repeated many things that have been well known in this country for several years. In an attempt to add new material he has placed considerable stress on the finding of increased pain responses and reflexes, particularly over the face, head and extremities, in intracranial tumors. He has stated that there is an elevated pain threshold in the presence of an altered physiologic action in the brain. Whereas clinical observations are always of value, it would seem that these are a bit far fetched; and they are no real contribution to the diagnosis of intracranial tumors.

Your Health and Your Earning Power: A Book Prepared for the Use of the Employees of the Electric Light and Power Industry. Cloth. Price, 65 cents. Pp. 181, with illustrations. New York: National Electric Light Association, 1931.

This book was prepared for the employees of the electric light and power industry through the National Electric Light Association. All the chapters that it contains have been prepared by competent workers through the Committee on Health Promotion and First Aid of the association. The book is essentially a guide to hygiene written in simple language. It covers briefly knowledge of anatomy, physiology, diet, living habits, personal hygiene and disease prevention, first aid in sickness, home nursing and first aid to the injured. The material is reliable.

Books for Tired Eyes: A List of Books in Large Print. Compiled by Charlotte Matson, Minneapolis Public Library. Second edition. Paper. Pp. 58. Chicago: American Library Association, 1931.

The American Library Association has done a valuable service in making available a list of books printed in large type for readers who need that type of book. All the books in the list are printed in type as large as 14 point; some of them are in type as large as 24 point. The books are classified as fiction, with subclassifications, biography, travel and general literature. There is also a list of books for young people.

Quacks. By Charles W. Warner. Cloth. Price, $1. Pp. 206. Jackson, Mississippi: The Author, 1930.

The author has for many years been associated with the sale of various books and publications to physicians. He writes as a thorough friend of the profession. Most of his material has been taken from easily available sources. The writing is "rough and ready" and will, no doubt, afford both interest and amusement to every medical reader. The author has also arranged to provide individual chapters in the form of pamphlets to those who wish to extend his circulation.

Woman's Coming of Age: A Symposium. Edited by Samuel D. Schmalhausen and V. F. Calverton. Cloth. Price, $3.75. Pp. 569. New York: Horace Liveright, Inc., 1931.

This volume is a symposium presented largely by advanced thinkers on the subject of women. The writing is interesting and thought provoking throughout. From personal experiences, many readers will find much on which they differ with those who write. Of particular interest to the physician is part two, which deals with psychology and pathology of the sexes, including particularly the articles entitled "What the Clinic Reveals," by Carrie Weaver Smith; "The Emotional Life of Modern Women," by G. V. Hamilton; "Woman's Sexual Nature," by Havelock Ellis, and "The Struggle Against Childbearing," by Herbert Aptekar. Other parts of the book deal with women through the ages, the new woman, and problems and projects. The book includes twenty-eight essays and an introduction, concluding with biographic outlines of the lives of the contributors.

Medicolegal

Accident Insurance and Death from Carbon Monoxide

(Miller v. Inter-Ocean Casualty Co. (W. Va.), 158 S. E. 706)

On Dec. 16, 1928, the automobile which Miller was driving became hopelessly mired. The evening was damp and cold. Miller's two companions proceeded afoot, while he remained with the car in anticipation of the arrival of a team of horses which passers-by had promised to send to pull the car out of the mud. Miller, while waiting, was to repair a tire which had blown out. The following morning, Miller was found dead in the car. The engine was running and the windows were closed. The tire had not been repaired. The physician who examined the body found the lips a pink color and a "cherry blush" on the cheeks, instead of the usual pallor of death. He diagnosed the case as one of carbon monoxide poisoning. Miller was insured against the effects of bodily injury caused directly, exclusively, and independently of all other causes by external, violent, and accidental means, "which bodily injury is sustained by the insured in (1) automobile accidents, while operating, driving, riding in or on, . . . an automobile." The insurer, however, refused payment, and Miller's widow, the beneficiary under the policy, instituted suit. From a judgment in favor of the widow, the insurer appealed to the Supreme Court of Appeals of West Virginia, where the judgment of the trial court was affirmed.

In response to the insurer's contention that the deceased "was not operating his automobile within the meaning of the policy at the time he was affected by the carbon monoxide gas," the court cited with approval a North Dakota decision in a similar case:

> "To exclude the inhalation of carbon monoxide gas during a period when the car is stalled in a mudhole on the theory that motion had ceased would be not merely to adopt a narrow meaning of the language of the contract, but to actually deprive the words used of a portion of their ordinary meaning. The occupant of a car while it is stalled in a mudhole, particularly during a time when means of escape in comfort may well appear to be lacking, is still riding in the car in quite the same sense as a passenger upon a steamship at anchor may be riding the waves." *Johnson v. Fed. Life Insurance Co.*, 234 N. W. 661.

The insurer contended further that death was not the result of bodily injury caused by accidental means, within the meaning of the policy. With that contention, however, the Supreme Court of Appeals did not agree. The term "accidental means," said the court, has been variously defined, and the court accepted the view that an effect which is not the natural or probable consequence of the means which produced it, which does not ordinarily follow and cannot be reasonably anticipated from the use of those means, which the actor did not intend to produce, and which he cannot be charged with the design of producing under the maxim that every man must be held to intend the natural and probable consequence of his deeds, is produced by accidental means.—*Western Commercial Travelers' Association* v. *Smith*, (C. C. A.) 85 Fed. 401, 40 L. R. A. 653.

The court furthermore would not accept the contention of the insurer that Miller voluntarily exposed himself to the danger which caused his death. The odorless and tasteless nature of the insidious monoxide gas, said the court, prevents any intimation that the insured knowingly remained in a place of danger. While it is true that without the engine running, no carbon monoxide would have been produced, and that to the extent that Miller started the car and closed the windows his acts were voluntary, yet without some intervening factor the natural and probable consequences of his acts would have produced no danger. That intervening factor was the proximity of the exhaust pipe to the ground, causing the poisonous gas to come into the car—which produced the unnatural condition and danger, a factor which cannot be attributed to the deceased and which was not one that occurs or is anticipated in the ordinary course of events under similar circumstances.

Workmen's Compensation Acts: Complications Following Industrial Accident Compensable.—The plaintiff, in the course of his employment, strained a sacro-iliac joint. Infection followed this strain, and complications arose in the sacro-iliac region, prolonging the disease and aggravating the plaintiff's condition. Ten physicians who testified concurred in the opinion that the plaintiff's condition had become worse because he had not received proper treatment immediately after the accident; that a strain of the sacro-iliac joint usually should be cured within a month or two, if properly treated and the patient made to rest; and that the plaintiff's condition at the time of the trial was such that he could not perform manual labor. On behalf of the defendant it was contended that the evidence did not establish that the injury to the plaintiff was the result of an accident occurring out of and in the course of his employment. We are of the opinion, said the court of appeal of Louisiana, second circuit, second division, that the evidence does establish with legal certainty that the plaintiff's condition is traceable to a strain sustained by him in the course of his employment. It is probably true that his continued disability has been contributed to by diseases independent of, or possibly connected with, the original injury, causing prolongation of the ailment and slowness of recovery. However, even if that is true, the right to recover compensation will not be unfavorably affected thereby. It is not necessary, in order to recover under the employers' liability act of Louisiana, that the continued disability resulted directly from the injury. It is sufficient if the disability is the result of a condition arising from the injury, or that the injury is a contributing cause of the disability.—*Anderson v. Louisiana Oil Refining Corporation (La.), 134 So. 343.*

Workmen's Compensation Acts: Right of Employee to Sue for Injury Due to Occupational Disease.—The plaintiff alleged that the disease of the lungs from which he suffered was due to the inhalation of particles of steel in the course of his employment. He attributed the inhalation of such particles to the failure of his employer to provide proper safeguards to protect its employees. Since the condition from which he suffered was admittedly not compensable under the workmen's compensation act of New Jersey, he brought suit against his employer, at common law, to recover damages. His employer, the defendant in this case, contended that it was the intent of the legislature to provide compensation for only the accidents and occupational diseases described in the statutes, and not only to exclude all other occupational diseases from compensation under the workmen's compensation act, but also to preclude a person from instituting an action at law to recover damages for an occupational disease not described in it. But, said the circuit court of New Jersey, Hudson county, if the legislature had intended to bar an action at common law for an occupational disease contracted through the negligence of an employer, it would have said so. The contention of the employer was therefore overruled.—*Szalkowski v. C. S. Osborne & Co. (N. J.), 154 Atl. 611.*

Privileged Communications: When Privilege Is Waived.—By the weight of authority, according to the Supreme Court of Oklahoma, the right to waive the benefit of a privileged communication statute survives a patient and may be exercised after his death by the beneficiary named in an insurance policy on the life of the deceased. The fact, however, that the beneficiary calls as a witness a physician who treated the deceased does not operate as a waiver of the privilege as to other physicians who treated him at other times, even though they attended him for the very ailment concerning which the physician called as a witness testified. The privilege is waived when the plaintiff testifies to the results of a particular examination by a physician, in which case the defendant may call the physician who made the examination, to corroborate or disprove the testimony of the plaintiff. It is waived, too, when two or more physicians in consultation examine the patient, and one of the examining physicians is called to testify concerning the results of the examination, in which case any other physician who took part in the same examination may be called by the opposing party. But if the physician whose evidence is proffered by the opposing party made his examination at a different time, and the plaintiff himself has not testified concerning the results of the examination made by the proffered witness, the evidence of that witness is inadmissible.—*United States Nat'l Life & Casualty Co. v. Heard (Okla.), 298 P. 619.*

Society Proceedings

COMING MEETINGS

American Medical Association, New Orleans, May 9-13. Dr. Olin West, 535 North Dearborn Street, Chicago, Secretary.

Alabama, Medical Association of the State of, Mobile, April 19-22. Dr. D. L. Cannon, 519 Dexter Avenue, Montgomery, Secretary.
American Association for Thoracic Surgery, Ann Arbor, Mich., April 18-20. Dr. Duff S. Allen, 3720 Washington Blvd., St. Louis, Sec'y.
American Association of Anatomists, New York, March 24-26. Dr. George W. Corner, University of Rochester School of Medicine, Rochester, N. Y., Secretary
American Association of Pathologists and Bacteriologists, Philadelphia, April 28-29. Dr. Howard T. Karsner, 2085 Adelbert Road, Cleveland, Secretary.
American Association of Physical Anthropologists, Washington, D. C., March 21-23. Dr. D. J. Morton, 632 W. 168th St., New York, Sec'y.
American Climatological and Clinical Association, Atlantic City, May 5-7. Dr. Arthur K. Stone, Auburn Street, Framingham Center, Mass., Secretary.
American College of Physicians, San Francisco, April 4-8. Mr. E. R. Loveland, 133 South 36th Street, Philadelphia, Executive Secretary.
American Dermatological Association, Havana, Cuba, May 3-5. Dr. William H. Guy, 500 Penn Avenue, Pittsburgh, Secretary.
American Gastro-Enterological Association, Atlantic City, May 2-3. Dr. Charles G. Lucas, 307 West Broadway, Louisville, Secretary.
American Heart Association, New Orleans, May 10. Dr. Irl C. Riggin, 450 Seventh Avenue, New York, Executive Secretary.
American Physiological Society, Philadelphia, April 28-30. Dr. Arno B. Luckhardt, 5216 Greenwood Avenue, Chicago, Secretary.
American Proctologic Society, Memphis, May 6-7. Dr. Curtice Rosser, 710 Medical Arts Building, Dallas, Texas, Secretary.
American Society for Clinical Investigation, Atlantic City, May 2. Dr. Cyrus C. Sturgis, Simpson Memorial Institute, Ann Arbor, Mich., Secretary.
American Society for Experimental Pathology, Philadelphia, April 28-30. Dr. C. Phillip Miller, Jr., University of Chicago, Chicago, Secretary.
American Society for Pharmacology and Experimental Therapeutics, Philadelphia, April 27-30. Dr. V. E. Henderson, University of Toronto, Toronto, Secretary.
American Society of Biological Chemistry, Philadelphia, April 28-30. Dr. H. B. Lewis, University of Michigan Medical School, Ann Arbor, Secretary
American Society of Clinical Pathologists, New Orleans, May 6-9. Dr. A. S. Giordano, 531 North Main Street, South Bend, Ind., Secretary.
Arizona State Medical Association, Globe, April 21-23. Dr. D. F. Harbridge, 407 Goodrich Building, Phoenix, Secretary.
Arkansas Medical Society, Little Rock, April 5-7. Dr. William R. Bathurst, 814 Boyle Building, Little Rock, Secretary.
Association for the Study of Internal Secretions, New Orleans, May 9-10. Dr. F. M. Pottenger, 1930 Wilshire Boulevard, Los Angeles, Secretary.
Association of American Physicians, Atlantic City, May 3-4. Dr. James H. Means, Massachusetts General Hospital, Boston, Secretary.
California Medical Association, Pasadena, May 2-5. Dr. Emma W. Pope, 450 Sutter Street, San Francisco, Secretary.
District of Columbia, Medical Society of the, Washington, D. C., May 4-5. Dr. C. B. Conklin, 1718 M Street, N. W., Washington, D. C., Secretary.
Florida Medical Association, Sarasota, May 3-4. Dr. Shaler Richardson, 111 West Adams Street, Jacksonville, Secretary.
Iowa State Medical Society, Sioux City, May 4-6. Dr. Robert L. Parker, 3510 Sixth Avenue, Des Moines, Secretary.
Kansas Medical Society, Kansas City, May 3-5. Dr. J. F. Hassig, 804 Huron Building, Kansas City, Secretary.
Louisiana State Medical Society, New Orleans, May 9-10. Dr. P. T. Talbot, 1430 Tulane Avenue, New Orleans, Secretary.
Maryland, Medical and Chirurgical Faculty of, Baltimore, April 26-27. Dr. Walter Dent Wise, 1211 Cathedral Street, Baltimore, Secretary.
Medical Society of the Missouri Valley, Omaha, Neb., March 29-31. Dr. Joseph D. McCarthy, 107 South 17th Street, Omaha, Secretary.
Medical Women's National Association, New Orleans, May 8-9. Dr. Sylvia Allan, Winthrop College, Rock Hill, S. C., Secretary.
Mississippi State Medical Association, Jackson, April 12-14. Dr. T. M. Dye, Clarksdale, Secretary.
North Carolina, Medical Society of the State of, Winston-Salem, April 18-20. Dr. L. B. McBrayer, Southern Pines, Secretary.
Ohio State Medical Association, Dayton, May 3-4. Mr. Don K. Martin, 131 East State Street, Columbus, Executive Secretary.
South Carolina Medical Association, Columbia, April 19-21. Dr. E. A. Hines, Seneca, Secretary.
Tennessee State Medical Association, Memphis, April 12-14. Dr. H. H. Shoulders, 706 Church Street, Nashville, Secretary.
Texas, State Medical Association of, Waco, May 5-7. Dr. Holman Taylor, Medical Arts Building, Fort Worth, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to The Journal in continental United States and Canada for a period of three days. Issues of periodicals are kept on file for a period of five years only. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending, but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Pathology, Boston

8: 1-121 (Jan.) 1932

*Renal Lesions in Toxemias of Pregnancy. E. T. Bell, Minneapolis.—p. 1.
Infectious Oral Papillomatosis of Dogs. W. A. DeMonbreun and E. W. Goodpasture, Nashville, Tenn.—p. 43.
*Tularemic Encephalitis: Pathology of Acute Tularemia with Brain Involvement and Coexisting Tuberculosis. F. W. Hartman, Detroit.—p. 57.
Study of Vaccine Virus Pneumonia in Rabbits. R. S. Muckenfuss, H. A. McCordock and J. S. Harter, St. Louis.—p. 63.
*Frequency of Anomalous Reticula in Right Atrium of Human Heart "Chiari Network": Eight Cases. F. C. Helwig, Kansas City, Mo.—p. 73.
Syphilitic Aortic Endocarditis and Superimposed Bacterial (Streptococcus Viridans) Endocarditis. E. B. Craven, Jr., Durham, N. C.—p. 81.
Quantitative Observations on Valves of Human Heart. P. Gross and R. A. Moore, Cleveland.—p. 91.
Formation of Bone Marrow in Suprarenal Gland. D. C. Collins, Rochester, Minn.—p. 97.
Multiple Infarcts and Necroses of Spleen (Fleckmilz). G. Rake, Heidelberg, Germany.—p. 107.
Tumors in Captive Primates: Two Cases. H. L. Ratcliffe, Philadelphia.—p. 117.

Renal Lesions in Toxemias of Pregnancy.—Bell states that in fatal cases of eclampsia a characteristic glomerular lesion is found. The glomeruli show a marked narrowing of all their capillaries, caused usually by an increase in thickness of the capillary basement membrane, but sometimes by an increase of endothelial cells. One case is reported in which the lesions resulting from an attack of eclampsia seven years before are described. These consisted of focal hyaline areas in the glomeruli with partial or complete glomerular obliteration and varying degrees of tubular atrophy. It is shown that a peculiar form of chronic renal disease may result from the eclamptic kidney. In one case of hyperemesis gravidarum, glomerular lesions were found which corresponded entirely to those of typical eclampsia. In three other cases the glomeruli were normal. A fatty liver without necroses is characteristic of this form of toxemia. When a woman with chronic renal disease becomes pregnant, there is usually an aggravation of all the nephritic symptoms. The condition cannot be distinguished from preeclampsia and eclampsia unless the condition of the kidneys prior to pregnancy is known, or unless there is a definite impairment of renal function. Women with chronic nephritis do not show a special tendency to develop gestation eclampsia.

Tularemic Encephalitis.—Hartman describes a case of acute tularemia with diffuse encephalitis and coexisting tuberculosis of the kidney and epididymis. The brain lesions were readily seen as areas of yellow necrosis and hemorrhage throughout the base. Microscopically there was patchy necrosis with infiltration of round cells, wandering cells, and polymorphonuclear leukocytes.

Frequency of Anomalous Reticula in Right Atrium of Human Heart "Chiari Network."—Helwig defines a true "Chiari network" as an anomaly which is formed of strands and reticula which stretch from the thebesian and eustachian valves across the right auricle to insert either into the crista terminalis or the endocardium near the tubercle of Lower. Several explanations of this anomaly have been proposed to account for its development. Chiari thought that it was a remnant of the right venous valve of the septum spurium. Looser believed that it arose from a dislocation of the fibers from their normal points and took place as a result of irregularity in endocardial growth. Jordan, in reporting two cases, was inclined to the view that the network was formed from remnants of portions of the valves of the right horn of the sinus venosus. Since Chiari's publication, fifteen additional cases have been studied and added to the literature. From the small number of reported instances of this anomaly one might assume that these structures are quite rare, while the author's observations lead him to believe that the contrary is true. In a series of 460 necropsy examinations conducted at St. Luke's Hospital from Jan. 1, 1928, to July 1, 1931, a period of three and a half years, seven hearts showing this anomaly were seen, an incidence of 1.5 per cent.

American Journal of Public Health, New York

12: 1-126 (Jan.) 1932

Cost of Sanitary Survey of Streams. W. L. Stevenson, Harrisburg, Pa.—p. 1.
*Diphtheria Toxin-Antitoxin and Toxoid: A Comparison. W. H. Park and May C. Schroder, New York.—p. 7.
*Advantages of Toxoid in Diphtheria Prophylaxis. W. T. Harrison, Washington, D. C.—p. 17.
Experiences with Diphtheria Toxoid in Canada. J. G. Fitzgerald, R. D. Defries, D. T. Fraser, P. J. Moloney and N. E. McKinnon, Toronto, Canada.—p. 25.
Degree of Immunization from Injection of Diphtheria Toxoid: (a) of Different Strength Toxoids, (b) at Varying Intervals, (c) of Treated Toxoids. O. R. Povitzky, New York.—p. 29.
Preparation of Stabilized Schick Toxin. P. J. Moloney and Edith M. Taylor, Toronto, Canada.—p. 38.
What Can a Community Do When It Is Not Yet Ready to Establish a Mental Hygiene Clinic? H. G. Weiskotten, Syracuse.—p. 44.
Marketing Mass Education. H. N. Calver and B. Brown, New York.—p. 49.
Health Aims and Professional Services: Infancy, Preschool and School Ages: Medium City. W. W. Bauer, Racine, Wis.—p. 59.
Accuracy of Counting an Agar Plate. F. L. Schacht and A. H. Robertson, Albany, N. Y.—p. 80.

Diphtheria Toxin-Antitoxin and Toxoid.—Park and Schroder state that the immunizing effects of their best toxoid have been better than from the best properly standardized toxin-antitoxin. They have therefore recently adopted the toxoid (Ramon) for the children of preschool age in New York City but continue to use toxin-antitoxin for the school children and for such adults as, for instance, nurses, who require it. They may soon employ the toxoid entirely, especially if they are able to reduce the substances in it which cause pseudoreactions.

Advantages of Toxoid in Diphtheria Prophylaxis.—Harrison summarizes the advantages of diphtheria toxoid over toxin-antitoxin mixture as follows: 1. It is from 20 to 30 per cent more effective, even when only two doses are given. 2. It contains no serum or other animal protein likely to sensitize to a later therapeutic serum injection. 3. It is absolutely without local or general reaction in practically all children under 7 years of age. Reactions in older children and adults are only unpleasant, not dangerous. 4. It contains no free toxin. 5. It is more stable, retaining its effectiveness for a longer period, and is not affected by freezing.

American Journal of Surgery, New York

15: 1-218 (Jan.) 1932

*Tribromethanol-Amylenehydrate ("Avertin" Fluid): Report of Three Hundred and Fourteen Basal Anesthesias Administered to Two Hundred and Twenty-Five Patients. E. F. Goldschmidt and A. M. Hunt, New Haven, Conn.—p. 1.
Uretero-Intestinal Anastomosis: Simplification of Coffey Technic. H. D. Furniss, New York.—p. 12.
*Transplantation of Ureters to Rectosigmoid and Cystectomy for Exstrophy of Bladder: Seventy-Six Cases. W. Walters, Rochester, Minn.—p. 15.
Radical Electrosurgical Mastectomy: Report of Illustrative Case. S. H. Groff, Ojai, Calif.—p. 23.
*Lumbosacral Sympathetic Ganglionectomy. H. Ito, Kyoto, Japan, and G. Asami, Ehime, Japan.—p. 26.
Chronic Hypertrophic Vulvitis Complicating Pregnancy. P. Rucker, Richmond, Va.—p. 39.
Blood Transfusion: Its Importance in Practice of Obstetrics. E. C. Lyon, Jr., New York.—p. 42.
Prolapse of Rectum and Uterus in Same Patient. E. P. McDonald, Albany, N. Y.—p. 47.
Pyelographic Evidence of Horseshoe Kidney: Report of Case in Girl Thirteen Years of Age. S. J. Sinkoe, Atlanta, Ga.—p. 51.
Ureter Catheter Drainage in Ureterotomy. W. M. Kearns and S. M. Turkeltaub, Milwaukee.—p. 56.
Conjugal Infection of Bacillus Coli Associated with Gangrene of Testis. M. W. King, Cleveland.—p. 61.
Functional Position from Orthopedic Standpoint. G. Anopol, New York.—p. 63.
Incision for Exposure of Elbow Joint. W. C. Campbell, Memphis, Tenn.—p. 65.
New Bone Lengthening Apparatus for Femur. G. K. Coonse, Columbia, Mo.—p. 68.

Intra-Articular Stabilization of Recurring Dislocation of Shoulder: Technic of Suspension of Acromium by Autogenous Fascia Lata Suture. C. M. Gratz, Assisted by R. P. Robison, New York.—p. 71.
*Operative Cure of Hallux Valgus and Bunions. S. Kleinberg, New York.—p. 75.
Osteomyelitis of Vertebrae: Two Cases Simulating Perinephric Abscess. J. A. Lazarus, New York.—p. 82.
Method of Inserting Blood Transfusion Needles into Veins. J. M. Scannell, Jamaica, N. Y.—p. 88.
Spinal Anesthesia Records. R. C. Webb, Minneapolis.—p. 91.
Healing of Chronic Duodenal Ulcers. T. L. Bliss, Rochester, Minn. —p. 93.
Adenocarcinoma of Sigmoid with Metastasis to Eye. C. F. Dixon and W. L. Benedict, Rochester, Minn.—p. 99.
Traumatic Rupture of Stomach: Two Cases. C. R. Fancher and M. G. Barmore, Oakland, Calif.—p. 101.
Treatment of Certain Cases of Duodenal Ulcer by Jejunostomy, with Application of Some Newer Physiologic Principles and Use of Electric Feeding Pump. E. H. Mensing, Milwaukee.—p. 105.
Gastrocholecystic Fistula: Case. J. O. Rankin, Wheeling, W. Va.—p. 109.
*Acidosis Treatment of Inoperable Malignant Tumors. W. Meyer, New York.—p. 112.
Diagnosis of Ureteral Calculi and Problem of Their Conservative Management. A. M. Crance, Geneva, N. Y.—p. 120.
*An Electrosurgical Rongeur. G. E. Ward, Baltimore.—p. 130.
Clinical Management of Horseshoe Kidney. Part II. R. Gutierrez New York.—p. 132.

Tribromethanol-Amylenehydrate ("Avertin" Fluid).—Goldschmidt and Hunt present their experiences with 314 basal anesthesias with "avertin" administered to 225 patients. The drug was instilled by rectum as a 2.5 per cent solution in distilled water, usually in doses varying between 0.08 and 0.1 Gm. per kilogram of body weight, to patients of both sexes between the ages of 2 and 73 years, for operations requiring surgical anesthesia. Parenchymatous liver damage and extensive bilateral kidney disease are the only contraindications for the use of this anesthesia. It is concluded that, administered in sufficient doses, no less than 0.08 Gm. per kilogram of body weight, "avertin" fluid produces a good basal anesthesia. In only about 3.5 per cent of the cases was a satisfactory action not observed. In about 24 per cent of the cases full surgical anesthesia was obtained; in about 20 per cent the basal anesthesia was supplemented with local anesthesia (procaine); in the remaining cases ether, ethylene, oxygen, nitrous oxide, oxygen or a combination was employed at various phases of the operation. In all instances the necessary dose of the supplemental inhalation anesthetic, however, was only a fraction of the amount usually required for the operation performed. A temporary fall in the systolic blood pressure of about 19 mm. of mercury in men and 28 mm. in women occurred following the instillation. Studies with the cardiotachometer of Boas showed that the abrupt changes in heart rate produced by excitement at the beginning and the end of the anesthesia were markedly reduced or practically absent. The most striking of the advantages in the use of this basal anesthesia is the complete amnesia observed in all patients, they having no recollection whatever of the events following the instillation of the "avertin."

Transplantation of Ureters.—Walters reports the results obtained in transplantation of ureters to the rectosigmoid and removal of the exstrophied bladder in a group of seventy-six patients operated on at the Mayo Clinic. The method of transplantations was first used by C. H. Mayo in February, 1912; he applied Coffey's principle of submucous duct transplantation to the ureter. The operative procedures have been divided into three stages: (1) transplantation of the right ureter into the rectosigmoid, (2) two weeks later transplantation of the left ureter, and (3) ten days later removal of the exstrophied bladder. In none of the cases were ureteral catheters used in the transplantation. Three patients died in the hospital subsequent to operation. Twenty-seven patients have lived five years since the operation, and thirteen have lived ten years. Results were unsatisfactory in only three cases. In 50 per cent of the cases there was no evidence of renal infection. In 21 per cent there were short periods of mild renal infection; the interval between such periods in most cases was many months, sometimes years. The infection, too, was mild and apparently had little effect on the patient. The use of compounds such as iopax intravenously has made possible the study of renal function as well as of the outline of the renal pelvis and ureter in many of these cases. The use of this method and other methods of study of renal function leads to the belief that renal function is normal and that there is no dilatation of the pelvis, calices or ureters in cases in which the ureterosigmoidal transplantation is accurately carried out.

Lumbosacral Sympathetic Ganglionectomy.—Ito and Asami give a clinical account of twenty-seven cases of thrombo-angiitis obliterans together with a brief description of the technic of operation developed in their clinic in which the lower lumbar and upper sacral ganglions are removed with the intervening cord. A brief description of the animal experiments performed in their laboratory, showing the definite increase in the volume flow of blood through the homolateral limb, and facilitation of wound healing thereby, is given. In the treatment of the symptom groups of thrombo-angiitis obliterans, apparently permanent and complete cure is obtained by the lumbar and lumbosacral sympathicoganglionectomy in their earlier stage of intermittent claudication. With the development of gangrene and obliteration of the popliteal or tibial artery, on the other hand, the result of the operation is not satisfactory. Obviously, therefore, such patients should be operated on at the earliest possible stage of the disease. The authors present clinical evidences contradictory to the doctrine of sympathetic tonic innervation of the skeletal musculature.

Operative Cure of Hallux Valgus and Bunions.—Kleinberg believes that the main basic factors in the etiology of hallux valgus and bunions are the adduction of the metatarsal bone of the great toe and the obliquity of its tarsometatarsal joint. The conspicuous and obvious causes of discomfort and disability are the valgus of the great toe, bony overgrowth at the base of the great toe and the overlying bursa or bunion. The author's operation aims to correct all the pathologic changes without disturbing the function of the great toe joint or weight bearing surface of the head of the first metatarsal. The adduction of the first metatarsal bone is corrected by the removal of a double wedge from the tarsometatarsal joint, the mobilization of the metatarsal bone, and the manual approximation of the first and the second metatarsal. The overgrowth of bone on the head of the metatarsal and the bunion are excised through a separate incision. The correction of the valgus of the great toe is assured by securing to the metatarsal bone a tongue of strong tissue, consisting of bursal wall and capsule, which is attached to the base of the phalanx. Care is exercised not to remove or in any way disturb the articulating portion of the head of the metatarsal bone. This accomplishes two results: namely, the support of the forefoot is not altered and the mobility of the great toe is not diminished. By bringing the great toe into line with the inner border of the foot, the sesamoid bones are returned to their normal relation to the head of the metatarsal, and the dorsal and plantar tendons of the great toe are brought into a normal or nearly normal position, where they can function properly.

Acidosis Treatment of Inoperable Malignant Tumors.—Meyer states that in patients afflicted with technically inoperable cancer, with or without metastases, all factors known to produce acidosis of the blood, properly selected, combined and adapted to the case in hand should be put into operation as quickly and as vigorously as possible. The biologic acidosis treatment of inoperable malignant tumors must be worked out further by cooperative efforts of the members of the medical and affiliated professions. The author believes that those who are working along the lines of acidosis treatment of patients afflicted with inoperable malignant tumors are on the right track.

Electrosurgical Rongeur.—Ward has devised an efficient electrosurgical bone rongeur by attaching a binding post to the usual form of rongeur for the connection of the cable from the electrosurgical generator. With this rongeur, otherwise inoperable, malignant bone is removed in dead pieces without danger of metastasis.

Archives of Dermatology and Syphilology, Chicago

25: 1-204 (Jan.) 1932

*Mycosis Fungoides as Clinical and Pathologic Nonexistent. D. Symmers, New York.—p. 1.
True Sugar Content of Skin in Diabetes. H. C. Trimble and B. W. Carey, Jr., Boston.—p. 6.
Nitrogen and Sulphur Content of Scales in Psoriasis and Exfoliative Dermatitis. A. Strickler and P. D. Adams, Philadelphia.—p. 11.
*Sunburn Tanning: Comment on Action of Light on Skin. H. Goodman, New York.—p. 15.

*Chemical and Electrolytic Lesions of Mouth Caused by Artificial Dentures. E. S. Lain, Oklahoma City.—p. 21.
*Exfoliative Dermatitis, Jaundice and Melanoderma Following Use of Neoarsphenamine: Case. F. Ronchese, Providence, R. I.—p. 33.
Trichostasis Spinulosa. J. F. Burgess, Montreal, Canada.—p. 40.
*Chronic Coccidioidal Dermatitis: Unusual Case. W. P. Zeisler, Chicago.—p. 52.
Generalized Scleroderma in Children: Three Cases and Review of Literature. E. L. Oliver, Boston.—p. 72.
*Demodex Folliculorum: Its Rôle in Etiology of Acne Rosacea. S. Ayers, Jr., and N. P. Anderson, Los Angeles.—p. 89.
*Acquired Progressive Kinking of Scalp Hair Accompanied by Changes in Its Pigmentation: Correlation of Unidentified Group of Cases Presenting Circumscribed Areas of Kinky Hair. F. Wise and Marion B. Sulzberger, New York.—p. 99.
Erythema Annulare Centrifugum. J. Butler, Minneapolis.—p. 111.
Granuloma Annulare Disseminatum: Two Cases. S. Monash, New York.—p. 122.
Pityriasis Lichenoides et Varioliformis Acuta: Case. L. Savatard, Manchester, England.—p. 132.
Pemphigus: Recovery Following Long-Continued Colonic Irrigations and Arsenic by Mouth. J. F. Schamberg, Philadelphia.—p. 134.

Mycosis Fungoides.—Symmers is of the opinion that postmortem and histologic observations show that mycosis fungoides is the cutaneous expression of at least three different diseases of the lymph node system: Hodgkin's disease; a variety of round cell sarcoma arising from the connective tissue reticulum of lymph nodes or elsewhere, and lymphosarcoma, originating in the lymphoid cells of the lymph nodes or of other lymphoid structures—in short, that mycosis fungoides as an independent form of disease does not exist.

Sunburn Tanning.—Goodman reviews the factors of pigmentation of the normal skin and discusses the features of induction of pigmentation of the white man's skin by radiation from solar and artificial sources. The subject of sensitizing the skin to make it more amenable to the production of pigment through erythema-producing radiation is touched on, particularly as it affects cosmetic tanning, photogenic diseases and eruptions of the skin partially responding to solar radiation. This entire subject of the biology of pigment in relation to vital ultraviolet radiation is important in view of the wide use of emanators of this type of radiation and the equally wide use of medicines of the coal tar derivative group, since it appears that coal tar quotients by ingestion in some persons induce a sensitivity to ultraviolet radiation. Local responses to the topical application of coal tar products and to erythema-producing ultraviolet rays produce conflicting results as far as pigmentation is concerned. Such a combination is offered in the treatment for vitiligo and leukoderma, and a like combination is also offered as the solution of the etiology of perfume dermatitis. The author believes that the biologic reaction of the skin to sources of light must also be considered in cancer of exposed surfaces of the skin and in some industrial dermatoses.

Mouth Lesions from Artificial Dentures.—In routine examination of the mouths of forty-five consecutive adults wearing full plate dentures, Lain noted that 42 per cent had either stomatitis or glossitis. It was found that many of these cases were due to neglected oral hygiene, malocclusion or trauma caused by imperfect adaptation of the plates to the alveolar processes. In several cases, however, after all ordinary etiologic factors had been eliminated, it was concluded that the poisonous constituents of the dental plates were the offending agents. Analyses of the plates in two of these cases revealed porosity with free mercury sulphide and sulphur in one, and aluminum powder with a trace of zinc in the other. Macroscopic and microscopic examination of other offending plates indicated undercuring with porosity. Each of thirty consecutive adults examined, whose mouths contained two or more metals of different potentialities, registered from 1 to 40 degrees of galvanic current on the micro-ammeter. One case of a metallic upper plate with amalgam fillings below registered a dangerously high degree of current. A large percentage of the patients complained of symptoms, such as metallic taste, burning tongue and acute dental nerve sensations, or presented visible mucous lesions adjacent to or between metallic dentures, from which, after a process of elimination, it was concluded that the etiologic factors were galvanic discharges.

Neoarsphenamine Intoxication.—Ronchese reports a case of dermatitis with jaundice followed by a generalized melanoderma, respecting, as did the erythrodermia, the areas previously the site of a roseola, following the use of neoarsphenamine. He calls attention to the fact that the absence of erythrodermia and pigmentation in these areas, leading to a picture of a leukomelanoderma, should help to demonstrate the pathogenesis of the syphilitic leukoderma as due to a secondary hyperpigmentation of the skin surrounding the sites of a previous noticed or unnoticed syphiloderma.

Coccidioidal Dermatitis.—Zeisler describes an unusual case of widespread dermic infection with Coccidioides immitis. The patient presented a combination of nodular, crusted, granulomatous lesions resembling mycosis fungoides, with lichenoid papules simulating miliary lupus and pigmented, atrophic, annular scars. In the later stages, the papillomatous and verrucose character of the eruption gave rise to a close clinical resemblance to blastomycosis. The chronic nature of the dermic lesions and the absence of demonstrable subcutaneous, glandular, pulmonary or osseous lesions suggests the term, chronic coccidioidal dermatitis as an appropriate one for this type of case. The skin as the portal of entry of the infection, and the possibility of animals being carriers of the disease is suggested by the history of the case. The temporarily favorable results of treatment with alternating courses of colloidal copper and antimony and potassium tartrate, and roentgen therapy, locally, are recorded. The histologic changes produced by the growth of Coccidioides immitis in the tissues in the form of nodules surrounding the blood vessels suggests dissemination by the blood stream. A peculiar type of segmental endosporulation is described which has been observed only once before, by Rixford and Gilchrist. The gross and the histologic changes produced in experimentally infected guinea-pigs are described and the parallelism to human infection is noted.

Demodex Folliculorum.—Ayres and Anderson report seventeen cases of acne rosacea in which Demodex folliculorum was found in moderate to large numbers either in pus from superficial lesions or in dry follicular scales, whereas it was absent from the pus in thirteen consecutive cases of acne vulgaris. Following the use of a strong antiparasitic ointment and the daily use of soap and water in twelve of the cases, the acne rosacea was either improved or clinically cured in all instances. Accompanying the clinical disappearance of the lesions of acne rosacea, Demodex folliculorum was present in correspondingly fewer numbers, and in some cases there was a total disappearance of the organisms. On the basis of their observations the authors conclude that Demodex folliculorum is one of several possible causes of acne rosacea.

Kinking of Scalp Hair.—The report of Wise and Sulzberger deals with an anomaly of hair growth and hair color which apparently is unique in medical literature. The patient was a man, aged 21, who complained that his light brown, straight and exceptionally vigorous head of hair had begun to undergo a change about two years before he consulted the authors, with the result that the frontal, temporal and parietal portions of the scalp hair had become "wooly and kinky" and had changed from light brown to black. This curious change in physical character and color was progressive and rather rapidly advancing, in that an extension of the process took place while the man was under observation. The kinky hair was pigmented in shades varying from dark brown to black. The shafts were much thinner than those of the straight hairs, their diameters being from one-half to one-fourth narrower than those of the straight hairs. While the majority of these kinky hairs exhibited no structural changes deviating from the normal, a small proportion of the specimens presented little globular and roughly spindle-shaped swellings of the shafts, and not more than two or three of them affected an individual hair from end to end. These dilated areas showed no difference in cellular structure as compared with other parts of the shaft. Close to the distal ends of many of these hairs, the shaft was split in two or three segments.

Florida Medical Association Journal, Jacksonville

18: 257-304 (Dec.) 1931

Chronic Compression Stenosis of Duodenum: Report of Case Presenting Unusual Features. J. S. Helms, Tampa.—p. 265.
Sterility. F. Richards, Jacksonville.—p. 273.
Poliomyelitis. H. M. Smith, Tampa.—p. 278.
Use of Local Anesthesia in Treatment of Fractures. J. M. Hoffman, Pensacola.—p. 281.
Spinal Anesthesia. C. Andersen, Tampa.—p. 283.

Georgia Medical Association Journal, Atlanta

20: 457-498 (Dec.) 1931

Bacteriologic Facts and Fancies. L Howard, Savannah.—p. 457.
Early Diagnosis of Tuberculosis in Children. T. I. Willingham, Atlanta. —p. 462.
Cancer: Chapter VII. J. L. Campbell, Atlanta.—p. 465.

Illinois Medical Journal, Chicago

61: 1-88 (Jan.) 1932

Review of Some of Advances in Gastro-Intestinal Diseases. J. G. Beykirch, East St. Louis.—p. 17.
Clinical Significance of Roentgenologic Observations of Stomach and Duodenum. S. A. Portis, Chicago.—p. 19
Factors in Reduction of Thyroid Mortality. F. Christopher, Evanston. —p. 23.
Hindsight: Or How to Live a Hundred Years. H. T. Byford, Chicago. —p. 25.
Acute Prostatitis Secondary to Extragenital Infections: Report of Cases. C. O. Ritch, Chicago.—p. 28.
*Effect of Vitamin B Complex Depletion on Infant Mortality: Experimental and Statistical Study. S. Maurer and Loh Seng Tsai, Chicago. —p. 30.
Accommodation and Acquired Hyperopia in Diabetes Mellitus. C. W. Geiger and J. H. Roth, Kankakee.—p. 34.
Some Pitfalls in Diagnosis of Acute Abdominal Conditions. J. K. Narat, Chicago.—p. 37.
Hay Fever Sinus Infections and Asthma. J. Shanks, Chicago.—p. 40.
Résumé of Study of Serology and Blood Chemistry of One Hundred Consecutive Cases. M. Zeller and L. J. Murphy, Chicago.—p. 42.
*Intra-Abdominal Hemorrhage from Ruptured Corpus Luteum Cysts. P. W. Greeley, Winnetka.—p. 44.
Hodgkin's Disease of Mediastinum: Case. D Klemptner, Chicago. —p. 46.
Luetic Aortitis: Clinicopathologic Résumé. L. Feldman, Chicago.—p. 48.
Treatment of Pulmonary Tuberculosis. J. Head, Chicago.—p. 54
Nontuberculous Spontaneous Pneumothorax. M. Biesenthal and M. Snyder, Chicago.—p. 56.
Factors Influencing Successful Prostatectomy. F. M. Phifer and A. J. Sullivan, Chicago.—p 58.
*Rat-Bite Fever Transmitted by a Cat Bite. H. E. Mock and A. R. Morrow, Chicago—p. 67.
Roentgen-Ray Observations of Pneumonoconiosis. F. Flinn, Decatur. —p. 70.
*Restlessness in Infancy. J. Carey, Joliet.—p. 76.
*Management of Chronic Arterial Occlusions of. Extremities. G. de Takáts, Chicago.—p. 79.

Effect of Vitamin B Complex Depletion on Infant Mortality.—Maurer and Loh Seng Tsai report that an analysis of the mortality of infants who die the first year, in Illinois, shows that 44 per cent die under 1 week of age. The decrease in infant mortality from 1925 to 1928 of infants under 1 year of age was 1,488, while there was a decrease in the group who die under 1 week of only 213. The infant mortality of the offspring of mother rats receiving a diet which is adequate only for normal maintenance of a nonpregnant rat is high, 71 per cent, as compared with 8.5 per cent normal mothers. for animals under 3 days of age, an age equivalent to about 1 week in the human infant. A female rat which, during the period of gestation or while a nursling, has received only sufficient vitamin B complex for maintenance when not pregnant, suffers a dystocia. Analysis by Goldberger of the food consumption of wage earners shows that December, January, February, March, April, May and June are months in which the diet contains less than the optimal maintenance of vitamin B complex, and Illinois statistics show that there is a higher mortality of infants less than 1 month of age during these months than during August, September, October and November, the four months of lowest infant mortality. The months of lowest mortality of infants under 1 month of age are the months in which the mothers have had two or more months of a diet containing more vitamin B complex than maintenance just prior to the birth of the child. The ordinary minimal maintenance diet, from a standpoint of vitamin B complex, must be practically doubled during pregnancy in order that a strong, healthy offspring may be produced with the least damage to the mother.

Intra-Abdominal Hemorrhage from Ruptured Corpus Luteum Cysts.—Greeley emphasizes the fact that, in examining a female patient for an acute abdominal lesion, the possibility of intraperitoneal hemorrhage from a ruptured corpus luteum cyst must not be overlooked. Bleeding from a ruptured ectopic pregnancy, although quite common, usually gives a history of symptoms pointing toward a pregnancy, which are not usually found in ruptured corpus luteum cyst. A history of recent trauma to the lower part of the abdomen may be a highly significant factor in making the preoperative diagnosis of lower abdominal pain.

Rat-Bite Fever Transmitted by a Cat Bite.—Mock and Morrow state that rat-bite fever is probably overlooked more frequently than is realized. The mortal enemy of the rat, the house cat, may act as the medium for the transmission of the etiologic factor of rat-bite fever. There is a specific treatment —neoarsphenamine—in small divided doses. If in the course of employment an individual is bitten by a rat or a cat and later develops this peculiar type of relapsing fever, the case at once develops a medicolegal aspect. The question of employee's compensation for an accident must be met.

Restlessness in Infancy.—According to Carey, certain babies are born with, or develop shortly after birth, a hyperactive vagus associated with distention, due to spasm of certain areas of the gastro-intestinal canal producing pain and restlessness. Under proper placid surroundings and attendants, these babies are less likely to exhibit mental disorders in later life. Atropine in proper dosage acts as a specific in those cases of nervous origin. Roentgen therapy while tried in only a few cases, appears to be of decided value.

Management of Chronic Arterial Occlusions of Extremities.—De Takáts calls attention to the fact that the proper management of peripheral vascular diseases requires an exact determination of the type and extent of vascular disturbance. Spasms should be differentiated from organic obstructions. The early diagnosis of these cases is in the hands of the general practitioner. The surgeon usually sees the late stages in the form of irreparable damage. When the diagnosis and level of circulatory impairment are determined early, conservative treatment is often successful. The author briefly discusses various forms of treatment and the indications for surgical operations.

Indiana State Medical Society Journal, Fort Wayne

25: 1-54 (Jan.) 1932

Filtrable Forms of Commonly Known Bacteria. T. B. Rice, Indianapolis. —p. 1.
Treatment of Common Skin Diseases. G. B. Underwood, Evansville. —p. 5.
Rationalization of Treatment of Cellulitis of Hand. T. B. Noble, Jr., Indianapolis.—p. 12.
Malpractice Insurance: (Theories and Facts). C. A. Stayton, Indianapolis.—p. 16.
Status Quo of Medical Profession. J. C. Boone, South Bend.—p. 18.

Iowa State Medical Society Journal, Des Moines

22: 1-58 (Jan.) 1932

Retroversion of Uterus: Factors in Its Production. N. F. Miller, Ann Arbor, Mich.—p. 1.
Compressed Fractures of Spine: "Jack" Decompression. A. F. O'Donoghue, Sioux City.—p. 8.
Gastric and Duodenal Ulcer: I. Roentgen-Ray Signs of Gastric and Duodenal Ulcer. H. C. Bone, Des Moines.—p. 13.
Id.: II. Complications of Gastric and Duodenal Ulcers. H. H. Dilley, Des Moines.—p. 16.
Id. · *III.* Treatment of Uncomplicated Cases of Gastric and Duodenal Ulcers. J. T. Strawn, Des Moines.—p. 19.
Surgical Aspect of Carcinoma of Stomach. J. B. Synhorst, Des Moines. —p. 25.
Some Fundamental Considerations in Injection Treatment of Hemorrhoids. W. A. Fansler, Minneapolis.—p. 27.
Bilateral Extra-Uterine Pregnancy: Case. Florence D. Johnston, Cedar Rapids.—p. 29.
Rat-Bite Fever Caused by Bite of Wild Mouse: Case. H. R. Jenkinson and C. F. Jordan, Iowa City.—p. 31.

Johns Hopkins Hospital Bulletin, Baltimore.

50: 1-56 (Jan.) 1932

Address on the Occasion of Presentation of the Howell Plaque to Johns Hopkins University, June 9, 1931. J. M. T. Finney, Baltimore.—p. 1.
Methods and Medicine. W. T. Longcope, Baltimore.—p. 4.
*Pellagra: Analysis of One Hundred and Two Cases. T. R. Boggs and P. Padget, Baltimore—p. 21.
Hypophysectomy in Monkey (Macacus Rhesus). W. M. Firor, Baltimore.—p. 33.
*Fetal Blood Studies: III. Chemical Nature of Asphyxia Neonatorum and Its Bearing on Certain Practical Problems. N. J. Eastman, Baltimore.—p. 39.

Pellagra.—Boggs and Padget present an analysis of 102 cases of pellagra. The analysis was undertaken primarily because of the relative increase of the disease in recent years, and also to see whether there was any foundation for the impression held by some that postalcoholic pellagra is different from the type. Thirty-one of the cases were of simple variety; forty were postalcoholic, and in thirty-one cases the disease arose as a complication of some other malady. The alcoholic variety of pellagra has become more than four times as common since the enactment of prohibition. The clinical features of the disease are pointed out, the diagnosis is discussed, and the observation is made that there exists no difference between the three types. Treatment is considered, with particular emphasis on the value of the liver diet, the dry treatment of the skin lesions, and the not too vigorous treatment of the stomatitis. Various theories as to the etiologic relationship between alcohol and pellagra are considered. Attention is called to the common occurrence of pellagra as a complication of debilitating disease.

Fetal Blood Studies. — Eastman reports a study of the carbon dioxide content, the carbon dioxide tension and the hydrogen ion concentration of fetal blood in normal and in asphyxiated babies. He observed that the carbon dioxide tension of fetal blood is normally higher than that of the maternal arm vein, the carbon dioxide diffusion gradient between fetus and mother being about 1.3 to 1. The elevated carbon dioxide tension of the mixed fetal blood supplying the brain of the fetus is difficult to reconcile with the apneic state of the fetus in utero and at present necessitates the assumption that the sensitivity of the fetal respiratory center, in respect to carbon dioxide at least, is definitely depressed. The primary blood chemical change in asphyxia neonatorum is a reduction in the oxygen content of the fetal blood to extremely low levels, the blood of the umbilical vein falling in fatal cases below one volume per cent. The carbon dioxide content of the blood in severe asphyxia neonatorum is slightly lowered as a result of the displacement of this gas from base by the large amounts of lactic acid present. The serum p_H of asphyxiated infants is reduced to the lower limits compatible with life, and in fatal cases may even fall below 7.00. The evidence indicates that the use of carbon dioxide as a resuscitating agent in asphyxia neonatorum is not only superfluous but may even be harmful in that it tends to aggravate an already existing acidosis. It is further suggested that other attempts at stimulation, such as slapping and tubbing, may also be deleterious. The author concludes that the chief therapeutic indication in asphyxia neonatorum is for oxygen (or air); the particular method by which the oxygen is administered seems of minor importance, so long as the air passages are clear and the pulmonary alveoli are supplied with adequate amounts of this gas.

Journal of Allergy, St. Louis

3: 113-218 (Jan.) 1932

- *Perennial Treatment of Seasonal Hay Fever. A. Brown, New York. —p. 113.
- Identity of Allergically Active Substance in Giant and Low Ragweed Pollen. A. Stull, R. A. Cooke and R. Chobot, New York.—p. 120.
- Emanations of Flies as Exciting Causes of Allergic Coryza and Asthma: III. Hypersensitiveness to Moths and Butterflies (Lepidoptera). S. J. Parlato, Buffalo.—p. 125.
- *Mechanism of Asthmatic Attack in Chronic Allergic Asthma. B. Steinberg, Toledo, Ohio.—p. 139.
- *Congenital Protein Hypersensitiveness: Protein Hypersensitiveness Transmitted from Allergic Mother to Child. B. Ratner and Janet E. Greenburgh, New York.—p. 149.
- Histamine: Reactive Substance in Human Dander. J. A. Murphy and H. M. Cobe, Philadelphia.—p. 161.
- Study of Apparent Atopic Similarity of Certain Chenopodiales Pollens. E. D. Sellers and W. B. Adamson, Abilene, Texas.—p. 166.
- Incidence and Rôle of Paranasal Sinus Disease in Hay Fever. R. A. Kern and J. C. Donnelly, Philadelphia.—p. 172.
- Maximum Dosage in Pollen Therapy. G. T. Brown, Washington, D. C. —p. 180.
- Urticaria Solaris. E. Weiss, Philadelphia.—p. 192.

Perennial Treatment of Seasonal Hay Fever.—Brown presents a modification of the specific treatment of pollen hay fever, consisting of a distribution of the injections at intervals of from three to four weeks throughout the year, instead of the usual preseasonal injections at intervals of five to seven days. One may institute the treatment at any period of the year, merely increasing dosage to maximum and then increasing the interval as tolerance permits. The actual number of visits to the office or clinic can be lessened from the usual twenty or more to twelve. There is little likelihood of an interruption of the treatment by illness or absence for other causes. It distributes the load of the physician's work in the clinic and in private practice throughout the year.

Asthmatic Attack in Chronic Allergic Asthma.—The bronchi were injected with iodized oil, and roentgenograms were made by Steinberg during the course of an asthmatic attack and during an interval between attacks. Postmortem material of patients dying from allergic asthma was correlated with the roentgenologic observations. On the basis of his study the author concludes that an asthmatic paroxysm is essentially due to bronchial occlusion by mucus as a result of a hypersecretory activity of the bronchial mucous glands. The degree and the duration of an attack are proportionate to the extent of mucous secretion and bronchial plugging. There is a reduction of functioning lung tissue due to a permanent bronchial occlusion. The extent of this reduction is proportionate to the duration of the disease and the severity and frequency of the individual attacks.

Congenital Protein Hypersensitiveness. — According to Ratner and Greenburgh, identical protein hypersensitiveness may exist in the human mother and her child. This hypersensitiveness is transferred by way of the placenta. The allergic antibodies responsible for this sensitization of the fetus in utero are shown to have the qualities of the Prausnitz-Küstner antibodies and are demonstrated in both the mother and her child. These antibodies further are shown to be identical with the anaphylactic antibodies, for anaphylactic shock and sensitization of the uterus were produced in guinea-pigs sensitized by human antibodies. Congenital protein hypersensitiveness is divided into two phases, active and passive, the existence of which places this type of sensitization on a basis as clearly defined as sensitization acquired through other portals, such as inhalation, ingestion or injection. Since sensitization of a human being can be acquired in utero before birth, it follows that allergy is not always dependent on chromosomal inheritance.

Journal of Biological Chemistry, Baltimore

94: 613-842 (Jan.) 1932. Partial Index

- Chemistry of Lipoids of Tubercle Bacilli: XXVI. Separation of Lipoid Fractions from Leprosy Bacillus. N. Uyei and R. J. Anderson, New Haven, Conn.—p. 653.
- Tryptophan Metabolism: II. Growth-Promoting Ability of dl-Tryptophan. C. P. Berg and Martha Potgieter, Iowa City.—p. 661.
- *Blood and Urine Studies Following Bromide Injection. A. B. Hastings, H. N. Harkins and S. K. Liu, Chicago.—p. 681.
- Acidic Property of Sugars. F. Urban and P. A. Shaffer, St. Louis. —p. 697.
- Colorimetric Method for Determination of Allantoin. H. W. Larson, New York.—p. 727.
- Metabolism of Sulphur: XVIII. Distribution of Urinary Sulphur in Rabbit After Administration of Monobromobenzene. S. A. Lough and H. B. Lewis, Ann Arbor, Mich.—p. 739.
- *Irradiated Milk: Energy Requirements for Antirachitic Activation. G. C. Supplee, A. F. Hess, New York, and M. J. Dorcas, Cleveland. —p. 749.
- Antineuritic Vitamin: I. Method of Assay, Concentration of Vitamin with Silver Under Various Conditions and Its Solubility in Certain Organic Solvents. R. J. Block, G. R. Cowgill and B. H. Klotz, New Haven, Conn.—p. 765.
- Is Blood Protein Amide Nitrogen a Source of Urinary Ammonia? T. P. Nash, Jr., and E. F. Williams, Jr., Memphis, Tenn.—p. 783.

Studies of Blood and Urine Following Bromide Injections. — Hastings and his associates report experiments in which they demonstrated that red blood cells seem to have a stronger attraction for bromide ions than for chloride ions. The distribution ratios of bromide concentration between cells and serum are a uniform percentage greater than the chloride ratios. The presence of bromide lowers the chloride ratios even more. The kidneys seem to have a greater ability to excrete chloride than bromide. The excretion of chloride following a sodium chloride injection is practically equal to that following a similar injection of sodium bromide. The excretion of chloride and bromide is not altogether proportional to the concentration of these ions in the serum. After the injection of either sodium chloride or sodium bromide, the p_H remains rather constant but there are marked changes in the blood-water balance. The cells give up water, the water content of serum increases, the refractive index decreases, and the hematocrit reading falls. Most of these factors return toward normal and the hematocrit reading goes far above normal in the last few samples. Total carbon dioxide determinations were made only in the chloride injection experiments and showed a moderate drop in the value obtained after injection. The injection of either salt produces a moderate hyperpnea.

Antirachitic Activation of Milk.—Supplee and his associates present physical data indicating the character and the amount of radiant energy required for the antirachitic activation of milk and coordinate them with the biologic and clinical tests. The irradiation of the milk was carried out in thousand pound lots under commercial conditions which permitted a precise study of various factors. With a suitable quality and quantity of radiant energy applied under uniform conditions, the antirachitic and calcifying properties of milk can be regularly increased within a few seconds, as determined by biologic laboratory assays and clinical tests on infants. This high degree of activation is obtained without the development of adverse secondary reactions, which may occur after longer periods of exposure. The energy of the radiations from a suitable carbon lamp of the flaming arc type and a quartz mercury vapor lamp confers definite antirachitic and calcifying potency on milk treated according to a technic described by the authors. However, the spectral energy characteristics of the radiations from the carbon arcs are readily subject to control, as to both the quality and the quantity of the energy. Milk irradiated under controlled conditions described by the authors and subsequently dried by the Just process was found to protect even Negro infants from rickets during the winter months. Such milk manifested definite curative value in a number of cases, as shown by the marked healing in roentgenograms.

Journal of General Physiology, Baltimore

15: 257-361 (Jan 20) 1932

Chemical Explanation of Variability of Growth Rate O Rhan, Ithaca, N. Y.—p. 257.
Electrokinetic Phenomena. V. Small But Constant Source of Error in Measurements of Viscosity H A Abramson, New York -p. 279
Variation of Electric Resistance of Plant Tissues for Alternating Currents of Different Frequencies During Death B J Luyet, New York.—p. 283.
Physical Nature of "Cytotropism" and Allied Phenomena and Their Bearing on Physics of Organic Form N Rashevsky, East Pittsburgh —p. 289.
Sensibility of the Sunfish, Lepomis, to Monochromatic Radiation of Low Intensities. H. Grundfest, New York.—p. 307
Rôle of Intracellular Bacteriophage in Lysis of Susceptible Staphylococci J. H. Northrop and A. P. Krueger, Princeton, N J -p 329.
Effect of Added Loads on Geotropic Orientation of Young Guinea Pigs. M. Upton, Boston.—p. 333.
Effect of Denaturation of Viscosity of Protein Systems. M L Anson and A. E. Mirsky, New York.—p. 341
Killing of Colon Bacilli by Ultraviolet Light. R W G Wyckoff, New York.—p. 351.

Journal of Industrial Hygiene, Boston

14: 1-40 (Jan.) 1932

Hydrocyanic Acid Gas Poisoning by Absorption Through Skin P Drinker, Boston.—p. 1.
*Normal Sensitivity of Cardio-Inhibitory Center. W. R Miles, San Francisco.—p. 3.
Studies on Experimental Pneumonoconiosis VIII Inhalation of Quartz Dust. L. U. Gardner, Saranac Lake, N. Y.—p. 18.

Normal Sensitivity of Cardio-Inhibitory Center.—Miles recorded continuous electrocardiograms taken with capacity in series for young men while reclining in a steamer chair, while chinning a bar directly above the chair, and during relaxation following this exertion. The transitions from quiet to work, and then to recuperation, were very prompt. The man, in chinning the bar, lifted the body weight a vertical distance of 2 feet, held it up for seven seconds, and then promptly relaxed in the chair. There was a slight general increase (3 per cent) in heart rate in anticipation of the exertion, but the exertion itself produced in the first four seconds an added increase of 25 per cent, and in the next four seconds 5 per cent. The heart rate remained at the exertion level during the first four seconds of recuperation. Then the rate lengthened so promptly as to reach the preliminary level in from twelve to sixteen seconds after the work had been finished. The group of young men showed less variability in heart rate during exertion than under conditions of quiet or recuperation. The author suggests two types of cardio-inhibitory adjustment: regular and oscillatory; each of these may be further divided into prompt, average speed, and slow.

Journal of Lab. and Clinical Medicine, St. Louis

17: 297-398 (Jan.) 1932

Biometric Studies of Head Lengths of Human Spermatozoa. G. L. Moench and Helen Holt, New York.—p. 297.
*Effects on Pneumococci of Sodium Dehydrocholate, Bile Salt Derivative III. E. E. Ziegler, Washington, D. C.—p. 317.
*Detoxification of Cocaine, Picrotoxin and Strychnine by Sodium Amytal. E. E. Swanson, Indianapolis.—p. 325.
Presence and Significance of Isohemagglutinins in Body Outside Blood Stream. L. W. Parr, Beirut, Republique Libanaise.—p. 333.
Significance of Periodic Health Examination and Its Influence on Health of Group of Examinees: Summarizing Five Hundred Consecutive Periodic Health Examinations in Private Practice. F. A. Faught, Philadelphia.—p 337.
Isolation of Organism of Abortus-Melitensis Group from Blood Clot, Serum of Which Failed to Give Agglutination with Bacillus Abortus. Ruth Gilbert and H. Gladys Dacey, New York.—p. 345.
Normal Relationships of Blood and Urine Phosphorus. B. S. Walker, Boston.—p 347

Effects on Pneumococci of Sodium Dehydrocholate.—Ziegler reports that pneumococci of type I, grown on artificial mediums, were not dissolved by sodium dehydrocholate but were killed or rendered avirulent so that they would not grow on artificial mediums or produce infection. Sodium dehydrocholate has an antipneumococcus action in the animal body. A mixture of sodium dehydrocholate and of pneumococci, when injected into rabbits, produces a degree of immunity to pneumococcus infection. Sodium dehydrocholate does not produce local tissue injury as does sodium taurocholate and glycocholate.

Detoxification of Cocaine, Picrotoxin and Strychnine by Sodium Amytal.—According to Swanson, protection is afforded by sodium amytal against intoxication of cocaine, picrotoxin and strychnine. The intravenous and oral administration of sodium amytal in the order named offers the more effective protection for all three poisons. Sodium amytal is an anticonvulsant as well as a detoxifying agent for the three poisons.

Laryngoscope, St. Louis

42: 1-80 (Jan.) 1932

*Meningitis of Otitic Origin. J. G. Dwyer, New York.—p. 1.
Septic Meningitis of Rhinolaryngologic Origin. L. M. Hurd, New York.—p. 8.
*Newer Methods for Prophylaxis and Treatment of Meningitis, with Especial Reference to Streptococcus and Pneumococcus Meningitis. J. A. Kolmer, Philadelphia p. 12.
Chronic Otorrhea and Its Treatment, with Especial Reference to Use of "Iodine Dusting Powder" and "Zinc Ionization." A. P. T. Tsoong, Shanghai, China p. 34.
Tooth Discharged from Nose. Case Report. D. MacFarlan, Philadelphia.—p. 48
*Tonsillectomy Under General Anesthesia in Modified Rose Position. E F Ziegelman, San Francisco—p. 49.
Living Foreign Bodies in Larynx. F. Robbins, New York.—p. 58.
Control of Pain Following Tonsillectomy. A. F. Laszlo, New York.—p. 66

Meningitis of Otitic Origin.—According to Dwyer, the fact that in otitic meningitis so many kinds of treatment have been suggested and that the problem has been approached from so many points of view, and especially that the death rate is so high, simply indicates that the treatment is still *sub judice*. Practically every method of treatment has been used. The problem has been approached from two main avenues. One is based on surgery and drainage, such as repeated lumbar punctures, drainage of the cisterna, and so on. The second has been the injection of antiserums and drugs into the spinal fluid. The third has been a combination of the two. The author has tried all three, and no real progress can be reported in any series of cases. Eight of the patients in his series got well under different methods. The same methods failed in the vast majority of cases. With the brilliant results obtained in the treatment of the epidemic form with a specific antiserum, it seems to the author that the greatest hope will be the development of antiserums.

Prophylaxis and Treatment of Meningitis.—Kolmer summarizes the results of his clinical and laboratory investigations on the prophylaxis and treatment of septic meningitis in the form of clinical recommendations as follows: 1. Vaccination: In selected cases of chronic sinusitis and otitis and especially ethmoiditis, when extensive operative procedures are required, with the possibility of secondary meningitis, it is recommended that careful bacteriologic examination be made with the preparation of autogenous vaccines containing approximately one billion micro-organisms per cubic centimeter. When time permits, at least six to eight doses should be given at intervals of four to seven days. For adults the first dose may be 0.2 cc. by subcutaneous injection and subsequent doses gradually increased until 1 cc. is being given. Intracutaneous injections of 0.2 cc. per dose (not increased) may result in better immunization. Operation may be done about one week after the last dose. 2. Serum prophylaxis: If pneumococci are found it is advisable to determine the type, which requires an additional eighteen to twenty-four hours, because this information is of value from the standpoint of dosage of serum and prognosis. In infections of adults with type I pneumococcus, 10 cc. of Felton's concentrated antipneumococcus serum may be injected intramuscularly just before or immediately after operation; a second dose may be given the following day, and a third dose four days later. In infections with pneumococcus type II and group IV, the same dosage, or 15 cc., should be used; in infections with type III pneumococcus, a dosage of 20 cc. should be employed. The same doses may be given to children over 10 years of age; half doses to younger children. In infections with the streptococcus, a therapeutic syringeful of concentrated polyvalent antistreptococcus serum may be given just before or immediately after operation, repeated the following day and again four days later (in unusually severe infections), or an intramuscular injection may be given for the first dose, followed by one or two doses at the same intervals. Children under 10 years may receive about one half of these amounts. 3. Treatment of early meningitis: On the development of signs and symptoms of meningitis, spinal puncture may be conducted for the slow removal of about 3 to 5 cc. of fluid. If examination discloses the presence of a localized "meningismus" or meningitis there should be a complete exenteration of the cells in cases of acute mastoiditis and radical operation in cases of chronic suppurative otitis media. If the portal of infection has been the labyrinth, thorough drainage should be established through the labyrinth and in all cases it is advisable to incise the dura at the site of operation. In sinus cases, careful thought should be given to reoperation for the purpose of affording the best possible drainage. The intake of fluids may be increased and spinal drainage conducted every six to eight hours. Intracarotid and subthecal medication may be omitted. 4. Treatment of diffuse meningitis: If the foregoing measures fail to check the infection or if the clinical and spinal fluid examinations disclose a spreading type of meningitis, more radical measures should be decided on without delay because there appears to be little or no hope of success in the treatment of advanced cases.

Position in Tonsillectomy.—Ziegelman states that aspiration is apparently one of the causes of abscess of the lung following tonsillectomy. The position of the patient during operation is probably a factor in the formation of aspiration. The so-called modified Rose position from the standpoint of mechanics overcomes the tendency to aspiration. This position is ideal for orientation of the operative field. It is the logical position for the control of hemorrhage in the prevalent and always difficult area (the lingual area) and it is the position of choice for the prevention of surgical shock.

Michigan State M. Soc. Journal, Grand Rapids

31: 1-86 (Jan.) 1932

*Surgical Lesions of Large Bowel. F. W. Rankin, Rochester, Minn. —p. 1.
Welfare Movements and Michigan State Medical Society. B. R. Corbus, Grand Rapids.—p. 10.
Plastic Surgery: Its Psychologic Aspects. Claire L. Straith, Detroit. —p. 13.
*Conservative Operative Treatment of Hydronephrosis. J. K. Ormond, Detroit.—p. 18.
Tuberculosis and Reproduction. F. L. Adair and F. E. Whitacre, Chicago.—p. 23.
Some Early Printed Documents of Medical Department of University of Michigan. G. H. Jackson, Jr., Chicago.—p. 28.
Use of Synephrin Emulsion. E. K. Carmichael, Detroit.—p. 33.
Schizophrenia. I. L. Polozker, Detroit.—p. 34.
John Collins Warren. R. A. Meyers, Ann Arbor.—p. 39.
Michigan's Department of Health. C. C. Slemons, Lansing.—*p. 46.*

Surgical Lesions of Large Bowel.—According to Rankin, consideration of surgical diseases of the large bowel revolves around malignant tumors, for more than two thirds of all lesions requiring extirpation are carcinomatous. A review of colonic and rectal surgery at the Mayo Clinic for a year reveals the fact that 68 per cent of the total number of operations on the colon or rectum that were required for major lesions were for carcinoma. In addition, however, such lesions as tuberculosis, diverticulitis, polyposis, Hirschsprung's disease, fecal fistula, and an occasional bizarre condition, such as intussusception or another benign lesion, required attention. The author calls attention particularly to three problems directly associated with malignant disease of the colon: (1) the relationship of polypi to the development of carcinoma, (2) improved diagnostic methods, and (3) the choice of operation and its mortality.

Treatment of Hydronephrosis.—Ormond believes that, in selected cases of hydronephrosis, plastic operations on the ureteropelvic junction are indicated. A pyelogram of the supposedly uninvolved kidney should be a part of the diagnostic procedure in every case of hydronephrosis. The factors to be considered in deciding between a plastic operation and nephrectomy are (1) the condition of the opposite kidney, (2) the functioning power of the affected kidney and the cause of the hydronephrosis, (3) the age of the patient, and (4) his financial status. Following a plastic operation, all patients should have the benefit of ureteral dilation and pelvic lavage.

Military Surgeon, Washington, D. C.

70: 1-108 (Jan.) 1932

Hypertension and the Army Officer. F. M. Hartsock.—p. 36.
Medical Service in Nicaragua. S. A. Cameron.—p. 38.
Operations for Peptic Ulcer and Gastric Cancer, with Discussions. H. W. Jones.—p. 57.
Third Medical Reserve Officers' Inactive Training Unit at Mayo Foundation, Rochester, Minn. R. J. Bennett.—p. 67.

Nebraska State Medical Journal, Lincoln

17: 1-44 (Jan.) 1932

Some Practical Points in Allergy. O. A. Reinhard, Lincoln.—p. 1.
Uncle Sam Practices Medicine. A. L. Miller, Kimball.—p. 7.
Recent Advances in Endocrinology. J. F. Gardiner, Omaha.—p. 11.
Selection of Operation for Peptic Ulcer. R. R. Best, Omaha.—p. 15.
Importance of Primary Treatment in Fractures. H. W. Orr, Lincoln. *p. 18.*
"Avertin" Anesthesia: Analysis of Fifty Consecutive Cases of Basal Anesthesia Induced by "Avertin" Fluid: (Tribrom-Ethyl-Alcohol in Amylene Hydrate). R. H. Whitham and I. C. Munger, Jr., Lincoln. —p. *20.*
Treatment of Pneumonia. J. B. Pankau, Dalton.—p. 23.
Suture of Musculospiral Nerve: Case. C. G. McMahon, Superior.—p. 28.
Sudden Death Following Cisternal Puncture: Two Instances. C. Russum and M. W. Barry, Omaha.—p. 30.
Character of Labor: Its Influence on Puerperal Infection. D. H. Bessesen, Minneapolis.—p. 32.

New England Journal of Medicine, Boston

206: 47-102 (Jan. 14) 1932

Operative Procedures in Common and Hepatic Duct Injuries. H. M. Clute, Boston.—p. 47.
Endometriosis: Report of Two Cases. H. G. Stetson and J. E. Moran, Greenfield, Mass.—p. 52.
*Paraplegia Associated with Nontuberculous Kyphoscoliosis: Report of Case and Survey of Literature. H. R. Viets and M. H. Clifford, Boston.—p. 55.
*Intravenous Pyelography During Pregnancy. G. C. Prather, E. G. Crabtree and S. A. Robins, Boston.—p. 62.
Development of Rest Treatment in Pulmonary Tuberculosis. J. H. Pratt, Boston.—p. 64.
The Art and Human Nature. S. R. Roberts, Atlanta, Ga.—p. 70.
Progress in Obstetrics. J. Rock, Boston.—p. 77.

Paraplegia and Nontuberculous Kyphoscoliosis.—According to Viets and Clifford, pressure paraplegia may occur as the direct result of angulation of the spinal cord secondary to severe kyphoscoliosis. The paraplegia usually appears after many years of scoliosis, without predisposing trauma. The paralysis, spastic in type, is associated with sensory changes below the point of compression, sphincter weakness and, rarely, pain. Block in the pathway of *the spinal fluid* may be demonstrated by pressure studies and by the injection of iodized poppy-seed oil 40 per cent. Some patients are relieved or even cured by hyperextension of the spine, but most patients require surgical decompression of the impinged spinal cord at the point of maximum angulation of the spine. *The* prognosis, with appropriate treatment, is often good and sometimes excellent.

Intravenous Pyelography During Pregnancy.—Prather and his associates have found that intravenous pyelography is useful during pregnancy in which a kidney diagnosis is desirable but in which cystoscopic examination is not indicated. Satisfactory films can be obtained in at least 91 per cent. The majority of best plates are obtained from five to fifteen minutes after the injection has been completed. The authors did not observe any obstetric complications that could be related to the examination. With the roentgenographic technic described by them, there seems to be no danger to the fetus either from the solution injected or from the roentgen rays.

New Orleans Medical and Surgical Journal

84: 513-582 (Jan.) 1932

Example of What Surgery Can Do in Saving Certain Group of Cases of Pulmonary Tuberculosis as Illustrated by a Case Report. J. A. Danna, New Orleans.—p. 513
Ruptured Appendix and Its Management. J. C. Willis, Shreveport, La.—p. 518.
Verumontanitis: Its Relation to Impotence. L B. Moseley, Jackson, Miss.—p. 523.
Practice of Neuropsychiatry in General Hospitals. I Kimbell, Alexandria, La.—p. 525.
Am I My Brother's Keeper? G J. Smith, Jackson, La—p 531.
Gastro-Intestinal Disturbances in Infants Caused from Middle Ear and Mastoid Diseases. R. E. Anderson, Jackson, Miss.—p. 534
Gastro-Intestinal Manifestations in Allergy. B. G. Efron, New Orleans. —p. 540.
Importance of Prenatal Care. J P. Evans, Gulfport, Miss.—p. 545.
Bronchography. V. M. Maxwell, Sanatorium, Miss—p 547.
Diagnosis and Treatment of Cancer of Skin M. D Ratcliff, McComb, Miss.—p. 550.

New York State Journal of Medicine, New York

32: 61-124 (Jan 15) 1932

*Brief Review of Physiology of Gallbladder. L. Levyn, Buffalo—p 61.
Acute Poliomyelitis: Names and Synonyms: Infantile Paralysis. Heine-Medin Disease. I Pardee, New York.—p. 63
Provision for Treatment of the Syphilitic and Gonorrheic. A. Pfeiffer, Albany.—p. 68.
Leprosy in Child. I N. Kugelmass, New York—p 68
Results of Recent Hygiene Examination. P. B. Brooks, Albany—p. 70.
*Microscopic Slide Precipitation Test for Syphilis with Spinal Fluid: Comparative Study with Five Hundred Spinal Fluids J. J. Eller and C. R. Rein, New York.—p 71
Cisternal Puncture. M. A. Lyons, New York—p. 78
Recorded and Resident Death Rates in New York State J. V. de Porte, Albany.—p. 82

Physiology of Gallbladder.—According to Levyn, the three significant functions of the gallbladder are the evacuation of its contents brought about by contraction of its musculature, concentration of its contents through the absorption of water, and the secretion of mucus. Some workers have shown that dyes placed in the lumen of the gallbladder find their way into the lymphatics and that there is a probability that cholesterol is also absorbed from the bile. It is uncertain, however, whether this is a normal function or this phenomenon indicates very early gallbladder disease. The earliest pathologic changes in the gallbladder undoubtedly are directly related to disturbance of function, and cholecystography is of inestimable value as a functional test. If stasis of the bile occurs with no undue increase of cholesterol, active concentration may induce precipitation of other constituents of the bile with the formation of other types of stones.

Precipitation Test for Syphilis.—Eller and Rein describe experiments in which they noted that the microscopic slide precipitation test with spinal fluids was more sensitive than the Wassermann reaction, modified Kahn test, colloidal gold reaction and albumin-globulin ratios. This test gave results which agreed more frequently with the clinical condition of the patients than those of the other spinal fluid tests used in this series. The test is simple in detail and the results magnified by the microscope are read accurately with ease.

Northwest Medicine, Seattle

31: 1-48 (Jan.) 1932

Treatment of Pernicious Anemia. C. C. Sturgis and R. Isaacs, Ann Arbor, Mich.—p. 1.
Agranulocytic Syndromes. E. E. Osgood, Portland, Ore.—p. 5.
Undulant Fever. G. W. Millett, Portland, Ore.—p. 9.
Id.: Its Treatment by Whole Blood Transfusion. C. Quevli, Jr., and M. T. Nelsen, Tacoma, Wash.—p. 12.
Deaths Attributed to Diabetes in Oregon: Study of One Hundred and Sixty-Eight Cases with Especial Reference to Insulin. B. Holcomb, Portland, Ore.—p. 14.
Prolonged Incubation Period of Primary Sore: Review of Literature and Report of a Case. C. D. Donahue, Eugene, Ore.—p. 18.
Diet and Its Relation to Pathology. E. J. Jasper, Astoria, Ore.—p. 19.
Psychogenic Obstipation Simulating Acute Intestinal Obstruction. D. Metheny and R. N. Dillon, Seattle.—p. 20.

Pennsylvania Medical Journal, Harrisburg

35: 223-278 (Jan.) 1932

Modern Methods of Diagnosis in Kidney Infections. W. H. Kinney, Philadelphia.—p. 223.
Slit Lamp Study of Two Hundred Cases of Young Adult Lenses. L. F. McAndrews, Philadelphia.—p. 227.
Nervous and Mental Component in Cutaneous Disease. J. H. Stokes, Philadelphia.—p. 229.
Consideration of Some Phases of Nutrition in Early Life. A. G. Mitchell, Cincinnati.—p. 233.
*Pulmonary Disease as Result of Nasal Accessory Sinus Infection. W. F. Manges, Philadelphia.—p. 240.
Gas Anesthesia. W. T. Killian, Philadelphia.—p. 242.
Statistical and Other Observations on Spinal Anesthesia. W. W. Dill, Norristown—p. 244.
Present Day Anesthesia. E. W. Beach, Philadelphia.—p. 246.

Pulmonary Disease as Result of Infection of Nasal Accessory Sinus.—Manges states that cold in the head, followed by laryngitis, bronchitis, asthma, or maybe bronchopneumonia, either is infectious, in the first place, or soon becomes so. The course of this process is not well defined; its progress is not associated with severe reactions or excessive prostration unless bronchopneumonia develops, so that the condition is not taken seriously until asthma incapacitates the patient or cough becomes so severe as to demand attention. Asthma becomes a custom with the patient, and cough develops into chronic bronchitis, the forerunner of bronchiectasis. The underlying cause or source of infection in many cases lies most commonly in the maxillary antrums and ethmoids, but any or all of the accessory sinuses may be at fault.

Southern Medical Journal, Birmingham, Ala.

25: 1-112 (Jan.) 1932

Public Health in Prevention of State Medicine. F. J. Underwood, Jackson, Miss.—p. 1
Mimicry of Clinical Picture of Certain Extra-Abdominal Conditions by Others of Intra-Abdominal Origin J. M. T. Finney, Baltimore.—p. 6.
An Original Method of Estimating Thyrotoxic State. W. Bartlett and W. Bartlett, Jr., St. Louis.—p. 12.
Leukorrhea: Its Significance and Treatment. P. B. Bland, Philadelphia. —p 17.
Prevention of Puerperal Infection. J. W. Harris, Madison, Wis.—p. 23.
Operations on Sympathetic Nervous System for Arterial Disease of Lower Extremities. Experimental and Clinical Observations. A. O. Singleton, Galveston, Texas.—p. 26.
*Unstable Colon. J. L. Kantor, New York.—p. 29.
Infections of Prostate Gland W. A. Reed, New Orleans.—p. 37.
Consideration of Some Phases of Nutrition in Early Life. A. G. Mitchell, Cincinnati.—p. 39
Pediatrician's Relation to Psychiatry and to Education. B. Crothers, Boston.—p. 47.
Juvenile Delinquency and Child Guidance Clinic. C. S. Holbrook, New Orleans.—p. 50
Curriculum. R. H. Oppenheimer, Emory University, Ga.—p. 53.
Rôle of Roentgenologist in Health Audit. R. T. Wilson, Temple, Texas. —p. 55.
Survey of Otolaryngology. F. D. Woodward, University, Va.—p 57.
Problems Affecting Modern Private Clinical Laboratory. F. M. Johns, New Orleans.—p. 59.
Relationship of Health Officer to Organized Medicine. J. N. Baker, Montgomery, Ala.—p. 61.
Development of Dermatology to Its Present Status: Consideration of Its Contribution to Internal Medicine. C. B. Willmott, Louisville, Ky. —p. 63.
Present and Future Outlook of Pediatrics. D. L. Smith, Spartanburg, S. C.—p. 65.
Our Changing Conception of Eczema. B. Shelmire, Dallas, Texas. —p. 67.
Effects of Unrelieved Prostatic Obstruction. W. C. Stirling, Washington, D. C.—p. 73.

Unstable Colon.—According to Kantor, the unstable colon is one of the most common and disabling diseases encountered in practice. A certain amount of variability of colonic function is normal. Among the important causes of colonic instability are disorders of the nervous system, inappropriate diet, and vicious bowel habits. Nervous causes of colonic instability probably include disturbances of the psychic sphere as well as imbalance of the autonomic system. The chief dietary factors in colonic instability are rough foods, cold foods, and foods causing allergic manifestations. The chief causes of vicious bowel habits are popular misinformation, the ease of self-medication, and the relative unattractiveness of securing and following a conservative plan of treatment. The chief manifestations of colonic instability are constipation, diarrhea, "belly consciousness" and pain. Pain due to colonic instability is often mistaken for evidence of organic abdominal disease. Appendectomy has been frequently performed in cases of unstable colon. The diagnosis of colonic instability is readily made by roentgen examination. Especially useful is the nine-hour observation. Reassurance, relaxation and reeducation are the keynotes of successful restoration of normal bowel function.

Southwestern Medicine, Phoenix, Ariz.

15: 545-594 (Dec.) 1931

Aeronautics and Medicine. W. R. Jamieson, El Paso, Texas.—p. 545.
Roentgen Examination of Gastro-Intestinal Tract. M. J. Geyman, Santa Barbara, Calif.—p. 548.
Surgical Treatment of Peptic Ulcer. V. C. Hunt, Los Angeles.—p. 553.
Resistance and Immunity to Animal Infections. F. W. Allen, Jr., Albuquerque, N. M.—p. 557.
Treatment of Delirium Tremens. N. H. Brush, Santa Barbara, Calif. —p. 560.
Electrocautery in Tuberculosis of Larynx. W. E. Vandevere, El Paso, Texas.—p. 564.
Use of Insulin in Treatment of Anorexia and Malnutrition. D. G. Arnold, El Paso, Texas.—p. 568.
Industrial Hygienic Problems of Copper Mining Industry. F. V. Meriwether, Picher, Okla.—p. 571.
Treatment of Pneumonia with Quinine: Case. O. H. Brown, Phoenix, Ariz.—p. 577.
Cerebrospinal Meningococcic Meningitis: Specific Treatment. H. P. Mills, Phoenix, Ariz.—p. 579.

Texas State Journal of Medicine, Fort Worth

27: 629-696 (Jan) 1932

Present Status of Ketogenic Diet and Its Use. C. J. Barborka, Rochester, Minn.—p. 637.
The Internist and the Clinical Laboratory. J. E. Johnson, Mineral Wells.—p. 641.
Improper Use of Milk. F. S. Martin, Beaumont.—p. 645.
Emotional and Psychic Factors in Treatment of Tuberculosis. S. E. Thompson, Kerrville.—p. 648
Present Status of Vaccine Therapy. M. D. Bell, Dallas.—p. 649.
Bone Tumors from Roentgenologist's Aspect. W. J. Marquis and W. G. McDeed, Houston.—p. 652.
Atrophy of Suprarenal Glands in Addison's Disease. G. T. Caldwell, Dallas.—p. 654.
New Supravaginal Hysterectomy Based on Restoration of Physiologic Bladder Function and Normal Anatomic Pelvic Relationships. T. R. Sealy, Santa Anna.—p. 659.
Treatment of Chronic Brain Injuries. C. C. Nash, Dallas.—p. 662.
Primary Sarcoma of Stomach with Clinicopathologic Report of Case. G. E. Brereton, Dallas.—p. 666.
Prevention of Intracranial Birth Injuries. C. R. Hannah, Dallas.—p. 671.
Postpartum Care. F. J. Iiams, Houston.—p. 673.

United States Naval Med. Bulletin, Washington, D. C.

30: 1-150 (Jan.) 1932

Relief Work in Managua Earthquake. G. D. Hale and H. R. Boone. —p. 1.
*Mortality in Appendictis. G. F. Cottle.—p. 9.
Significance of Leukopenias, with Especial Reference to Agranulocytosis. R. R. Kracke.—p. 16.
Aschheim-Zondek Pregnancy Test. O. Wildman.—p. 27.
Some Aspects of Personnel Division of Bureau of Medicine and Surgery. K. C. Melhorn.—p. 31.

Mortality in Appendicitis.—According to Cottle, acute appendicitis operated on before the stage of abscess and generalized peritonitis are practically devoid of mortality. After forty-eight hours from onset the mortality rises. The author believes that every abdominal pain should be considered appendicitis until proved to be due to another pathologic condition. A rising pulse generally means peritonitis in cases that begin with abdominal pain. The decision for or against operation should be made after a brief (two or three hour) period of intensive study of the case. Operation should be offered as soon as the diagnosis is made and usually when acute appendicitis cannot be conclusively ruled out. The Ochsner treatment should not be used in appendicitis. It is advocated only for cases of generalized peritonitis—pulse over 130 and a silent distended abdomen. The pelvic appendix with its atypical onset and course must be remembered, bladder and rectal symptoms associated with abdominal pain given careful consideration, and the rectal examination not forgotten.

Virginia Medical Monthly, Richmond

58: 641-706 (Jan.) 1932

Mental Hygiene Movement. R. P. Truitt, Baltimore.—p. 641.
Mental Hygiene Survey of the State of Virginia. D. C. Wilson, University.—p. 648.
Present Activities for Prevention of Mental Disorders in Virginia. W. F. Drewry, Richmond.—p. 653.
Suggested Program of Mental Hygiene for Virginia. Beverley R. Tucker, Richmond.—p. 656.
Outline of Practical Child Guidance Clinic. H. D. Coghill, Richmond. —p. 660.
The Family Physician's Duty to the Squinting Child. F. P. Smart, Norfolk.—p. 663.
*Significance of Schilling Differential Blood Count in Acute Infections of Childhood. W. A. McGee, Richmond.—p. 665.
Acromegaly Succeeded by Hypopituitarism: Case. E. L. Corey and J. B. Graham, Richmond.—p. 669.
Trichomonas Vaginalis Vaginitis. C. J. Andrews, Norfolk.—p. 671.
Diagnosis and Treatment of the More Common Disorders of Anus, Rectum and Sigmoid. B. F. Dean, Jr., Washington, D. C.—p. 674.
Tuberculosis Outpatient Service of the State. R. K. Flannagan, Richmond.—p. 676.
Rambling Thoughts About Whisky and Drug Addiction. W. C. Ashworth, Greensboro, N. C.—p. 678.
Some Less Common Diseases of Upper Respiratory Tract. F. W. Shaw, Richmond.—p. 680.
How Far Will a Malingerer Go? Case. E. P. Tompkins, Lexington. —p. 682.
Analysis of Cesarean Sections Done at Columbia Hospital, Washington, D C., 1920-1930. J. J. Mundell, Washington, D. C.—p. 683.

Significance of Schilling Differential Blood Count.—McGee emphasizes the fact that much can be learned relative to diagnosis, prognosis and treatment by use of the Schilling hemogram. The changes in the granulocytes often precede physical signs, symptoms, fever and total cell count changes. Repeated hemograms carefully done reduce the need of total white counts, which are often insignificant in comparison to the differential study. The hemogram is sort of a kaleidoscopic view of the infection in the blood. An outstanding blood picture should not be ignored because of the absence of clinical symptoms. The author believes that the Schilling hemogram should replace the Ehrlich differential count. The use of the Giemsa stain shows the granulocytes, lymphocytes and monocytes more clearly than Wright's stain, and should supplant the latter except in emergencies.

Yale Journal of Biology and Medicine, New Haven

4: 225-368 (Jan.) 1932

Historical Studies on Nature and Treatment of Gunshot Wounds from Fifteenth Century to Present Time. T. Billroth, Berlin, Germany. —p. 225.
*Rôle of Lactic Acid in Living Organism. H. E. Himwich, New Haven, Conn.—p. 259.
Relative Position of Colon and Stomach. C. Haight and B. Halpert, New Haven, Conn.—p. 293.
Health Centers. I. V. Hiscock, New Haven, Conn.—p. 295.
Problem of Depopulation in Melanesia. H. Hamlin, New Haven, Conn. —p. 301.
Blood Picture of Normal Laboratory Animals. R. A. Scarborough.—p. 323.

Rôle of Lactic Acid in Living Organism.—Himwich calls attention to the fact that the reactions attendant on the formation and removal of lactic acid are of utmost significance in the economy of the body. During rest and exercise they are involved in processes that deliver energy for the work of life. Though the splitting of phosphocreatine furnishes the energy for the contraction of muscle, exercise cannot continue long without the formation of lactic acid, for the energy thus made available is the direct cause of the resynthesis of adenosintriphosphate and therefore indirectly that of phosphocreatine. Liver as well as muscle is involved in the processes of recovery as lactic acid is reconverted to glycogen. The reversible reactions between glycogen, dextrose and lactic acid not only are important for skeletal muscle, but also are concerned in the work of cardiac and smooth muscle, the brain and perhaps in that of peripheral nerve conduction. At present there is no proved connection between lactic acid formation and glandular secretion. The exchanges of dextrose and lactic acid in the blood of liver, heart, brain and skeletal muscle are indicated in a diagram which shows that muscle is the chief source of the blood lactic acid while the liver is the chief source of dextrose. Heart and brain remove both dextrose and lactic acid from the blood. The action of the liver in removing lactic acid from the blood and supplying it with dextrose is an etiologic factor in the maintenance of the hyperglycemia of diabetes. When this mechanism is interfered with, as a result of severe injury to the liver, lactic acid may accumulate. Since oxidations are necessary for the resynthesis of glycogen, oxygen lack is always followed by an increased concentration of lactic acid in the body. Such a condition occurs most frequently in exercise. It is also found in patients, especially those with cardiorespiratory disease or anemia.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Physical Medicine, London

6: 199-222 (Jan.) 1932

Heat in Treatment of Chronic Rheumatism. A. G. Watson and G. R. P. Aldred-Brown.—p. 201.
Treatment of Gout by Physical Methods. L. C. E. Calthrop.—p. 203.
Medical Review of Southern English Marine Resorts. M. B. Ray.—p. 205.
*Cardiac Fallacy in Acute Rheumatism. L. J. Llewellyn.—p. 208.
Rheumatism in London Busmen. S. J. G. Nairn.—p. 214.
Light in Relation to Rheumatism. A. B. Jones.—p. 215.

Cardiac Fallacy in Acute Rheumatism.—Llewellyn believes that the underlying morbid process in so-called acute rheumatism and chorea is one of endocrine autonomic imbalance involving especially the sympathetic divisions with their correlated endocrine glands, the thyroid and suprarenals (sympathetic) and parathyroids (parasympathetic). The morbid process or state of imbalance that determines what is termed acute "rheumatism" or "chorea" is a functional disorder. The same does not cause organic cardiac lesions in the majority of cases but only disturbances of cardiac rhythm which are mostly transitory in duration. The transitory cardiac arrhythmias, i. e., all states of dissociated rhythm, from "missed beats" to "incomplete heart block," are an integral part of the clinical syndromes termed acute rheumatism or chorea. They are the outcome of a transient phase of thyroidal or (as the author believes) of thyrosuprarenal toxicosis affecting the cardioregulatory or vasomotor system. This toxicosis—if prolonged, as in recurring attacks of so-called acute rheumatism or chorea or relapsing carditis—leads to endocarditis, myocarditis and terminal myocardial degeneration. But only in a minority do such organic cardiac lesions ensue. If the state of hyperthyroidism obtaining in so-called acute rheumatism or chorea evolves into or is preceded by exophthalmic goiter, it accentuates the tendency to organic cardiac lesions. The primary indication in therapy is to prevent, correct or control the initial tendency to endocrine-autonomic imbalance.

British Medical Journal, London

1: 1-26 (Jan. 2) 1932

Prognosis of Gastric and Duodenal Ulcer. Moynihan.—p. 1.
*Treatment of Dysmenorrhea by Exercise. Alice E Sanderson Clow.—p. 4.
*Bone Graft and Fusion Operations for Spine. S. A. S. Malkin.—p. 5.
*Lichen Urticatus: Differential Diagnosis of Smallpox. H. D. Chalke.—p. 7.
*Thallium Acetate in Treatment of Ringworm of Scalp. J. T. Ingram.—p. 8.
*Low Visceral Tone. D. W. Carmalt-Jones.—p. 10.
Tuberculous Cervical Abscess. H. Bailey.—p. 11.
Cerebral Aneurysm with Recurrent Leakage. R. M. J. Harper.—p. 13.

Treatment of Dysmenorrhea by Exercise.—According to Clow, the patient's history generally serves as an explanation of the cause of her dysmenorrhea. It is usually found that the age of its onset, most commonly 16 to 19, corresponds with some change in the daily routine, involving more restricted time for exercise and increased hours of work, owing to study for an examination, or entry to an office, shop or factory. With the first indication of menstrual trouble the inclination is to reduce the exercise still further, and, if possible, to lie down during the time of malaise. The author therefore explains that, to prevent or cure the pain, the circulation of the blood must be stimulated by muscular exertion. If there is not time or opportunity for sufficient exercise in the open air, it should be supplemented by exercise done at home. The author has selected a few movements as being specially effective for dysmenorrhea and has had them printed on a single sheet, which she gives to the patient and tells her to do them for a quarter of an hour daily for a few days before onset of the period, and on no account to fail to do them on the first and second days of the period. They should be done with enough vigor to promote a sensation of heat or a gentle sweat. With few exceptions this practice prevents the onset of the disability, and if the pain has already begun it is usually dispelled, or at least relieved, as soon as the feeling of warmth is experienced. Some, however, especially patients over 30, have to repeat the exercises two or three times on the first day in order to keep themselves free from pain. After continuing the treatment for six to twelve months, many are able to leave it off altogether, provided they are not engaged in sedentary occupations.

Bone Graft and Fusion Operations for Spine.—During the last few years, Malkin has had to consider carefully what is the best method of fusing the spine. After a trial of other methods he came to the conclusion that, from a practical point of view, the method of the double graft in the vertebral grooves was the soundest, the simplest and the most generally applicable. During the last twelve months he has used it in eight cases of varying type. While it is yet too early to speak of the final results, in all cases he has found the method (sometimes slightly varied) uniformly satisfactory.

Lichen Urticatus.—Chalke states that lichen urticatus frequently bears a striking resemblance to smallpox in the distribution of its lesions. The papules often prefer the limbs to the trunk, and the extensor surfaces to the flexor. The face receives little rash in the majority of cases. The lesions themselves differ markedly from those of smallpox, and this disease may be eliminated by careful examination.

Thallium Acetate in Treatment of Ringworm of Scalp.—Ingram believes that there is no serious evidence against the use of thallium acetate in the treatment of small-spore ringworm of the scalp if the drug is properly administered. Though toxic symptoms may occasionally be encountered, they are seldom severe and the patient invariably recovers completely. There is no evidence whatever to suggest that thallium acetate affects the growth or development of the child, or effects any permanent damage to any organ. The author describes a simple method of procedure, which, it is suggested, is perfectly safe and brings the practice within the scope of the general practitioner.

Low Visceral Tone.—Carmalt-Jones describes a series of cases in which physical and emotional weakness were found, with low blood pressure, visceroptosis, and a characteristic state of the tongue; a case more closely investigated showed low metabolism in every direction. The patients were women who had been subject to long-continued anxiety, and the condition is ascribed to functional insufficiency of the suprarenals.

Journal of Laryngology and Otology, Edinburgh

47: 1-80 (Jan.) 1932

*Medical and Surgical Complications of Tonsillectomy in Childhood. J A Keen.—p. 1.
Physical Phenomena Occurring in Semicircular Canals During Rotatory and Thermic Stimulation. G. Schmaltz.—p. 35.
Osteomyelitis of Frontal Bone Complicating Acute Frontal Sinusitis: Recovery: Case. C. H. Johnson.—p. 63.

Tonsillectomy in Childhood.—Keen studied the case records of 9,344 children who underwent tonsillectomy at a school clinic and analyzed all the chief medical and surgical complications, excluding hemorrhage. He observed that many illnesses which appear to be complications are really intercurrent infections which arise independently during the period of convalescence or already existed in a prodromal stage at the time of operation. This applies particularly to pulmonary complications, of which there were twenty-three in this series, eight of which are described in detail. In the "guillotine" method of tonsillectomy the anesthetic is short and the operation is rapidly carried out with the head of the patient in the extended position. Therefore, it is argued, the two important factors in the etiology of pulmonary complications, viz., ether irritation of the bronchial mucous membrane and inhalation of blood or septic material, can for practical purposes be excluded. Toxemia is a direct complication and results from an extension of the bacterial infection of the operation wounds. When the body defenses break down completely, generalized sepsis or septicemia may result. Five cases of postoperative septicemia, with one death, are described. Acute specific fevers sometimes complicate the convalescence and can generally be explained as intercurrent infections not directly connected with the operation. Diphtheria is particularly serious. Three cases are described, in all of which the diphtheritic infection was laryngeal and in two of which the patient died. In this series there were eighteen cases of scarlatiniform rashes after operation and five cases in which a diagnosis of scarlet fever was made elsewhere. Septic rashes of a scarlatiniform type after tonsillectomy are not very uncommon and they usually appear on the second or third day after operation. The diagnosis of scarlet fever is never justified under these circumstances. Acute otitis media is a definite complication of the operation. There were sixty cases in the author's series or 0.6 per cent. The prevention and treatment of earache after tonsillectomy is discussed. There were six cases of postoperative mastoid abscess and intracranial infection. These are described in detail and the pathology of fulminating meningitis following acute otitis media is considered. Lastly, a case of glottic spasm requiring laryngotomy, and a case of subcutaneous emphysema complicating the tonsil and adenoid operation, are described. The origin and mechanism of subcutaneous emphysema are described, with a consideration of the literature on the subject.

Journal of Mental Science, London

77: 669-930 (Oct.) 1931

Some Reflections on Progress of Psychiatry R. R Leeper.—p. 683
Development of Cortex and Functions of Its Layers. C. U. A. Kappers.—p. 692
Insanity and Its Relation to Parturient State B. Solomons.—p. 701.
Mechanism of Personality. W. Burridge.—p. 708.
Studies in Experimental Psychiatry: I. Case of General Inertia. W. Stephenson.—p. 723.
Psychologic Estimation of Effects of Certain Drugs on Syntonic and Schizophrenic Psychoses. J. H. Ewen.—p. 742.
Experimental Treatments of Schizophrenia. G. de M. Rudolf.—p. 767.
Prepsychotic Schizoid Character Study S M Coleman.—p. 804.

Journal of Physiology, London

71: 1-114 (Jan. 14) 1932

*Coronary Circulation in Isolated Perfused Heart. R Rössler and W. Pascual.—p. 1.
Latent Period of Skeletal Muscle. J. Roos.—p. 17.
*Course of Vasoconstrictor Nerves to Periphery H. P. Gilding.—p. 34.
Observations on Time Taken for Corpuscles to Traverse Liver. J. Barcroft, Y. Nisimaru and G. B. Ray.—p. 44
Studies on Physiology of Reproduction. I. Effect of Thymectomy and Season on Age and Weight at Puberty in Female Rat Dorothy H. Andersen.—p. 49.
Effect of Chicago Blue and Chlorazol Blue on Clotting Time of Blood and on Ovulation in Rabbit. F. W. R. Brambell and A S. Parkes.—p. 65.
Body Temperature in Rats on Normal and Deficient Diets: Preliminary Report. S. V. Gudjonsson.—p. 73
Vagus Influences Giving Rise to Phenomena Accompanying Expansion and Collapse of Lungs. M. Hammouda and W. H Wilson.—p. 81.

Coronary Circulation in Isolated Perfused Heart.—Rössler and Pascual analyzed the coronary circulation in the isolated perfused heart by means of the hot wire anemometer and discuss the chief peculiarities of this circulation. A convenient method for optical registration of the heart beat and a new method of heart perfusion are described. The statement of Hochrein and his co-workers that the coronary flow in a perfused artery is maximal during systole is not supported by the authors' experiments. The inflow is diminished by the contraction of the heart in proportion to its strength. Certain peculiarities of the coronary circulation, such as regurgitation and the overshoot, are described and analyzed. Examples are given of the action of various drugs, and it is shown how the vasomotor effect of a drug may be masked, accentuated or reversed by the action which the drug may simultaneously exercise on the heart beat.

Course of Vasoconstrictor Nerves to Periphery.—Gilding describes a method for following the distribution of the sympathetic nerves (and incidentally the motor and sensory nerves) to the tissues. The sympathetic nerves follow the motor or sensory nerves to the periphery, branching from them in the vicinity of the minute blood vessels innervated. The periarterial nerve plexus does not conduct impulses to the periphery. Stimulation of the stellate ganglion causes vasoconstriction in the skin, mucous membranes, muscles, bone, bone marrow, meninges, choroid plexus and thyroid.

Kenya and East African Medical Journal, Nairobi

8: 239-268 (Dec.) 1931

Note on Postmortem Calcium Content of Blood Serum and Cerebrospinal Fluid of East African Native. D. Harvey and F. W. Vint.—p. 240.
Treatment of Yaws and Syphilis. R. U. Gillan.—p. 246.
Observation on Anophelines and Malaria in Kitale, with Notes on Experimental Control with Paris Green. C. B. Symes.—p. 256.

Lancet, London

1: 1-64 (Jan. 2) 1932

*Diagnosis of Congenital Defects of Eye. Ida Mann.—p. 1.
*Diagnosis and Treatment of Pineal Tumors: Report of Case. W. Harris and H. Cairns.—p. 3.
*Early Diagnosis of Whooping Cough by Cough-Droplet Method, with Note on Vaccines and Their Use. A. D. Gardner and P. H. Leslie.—p. 9.
*Treatment of Acute Lobar Pneumonia by Artificial Pneumothorax. J. J. Coghlan.—p. 13.
Injection Treatment of Hemorrhoids. P G. McEvedy.—p. 17.

Congenital Defects of Eye.—Mann states that whoever studies cases of developmental defect of the eye will be struck by the frequency with which they resemble in many ways the results of acquired disease. Conversely, many acquired conditions come to reproduce with varying accuracy the possible results of developmental aberrance. The chief interest of the subject lies in the disentangling of the appearances so as to arrive at a knowledge of the past causative agents. In most cases the problem is not an urgent one, since the more dramatic of the acquired diseases usually present no resemblance to congenital defects. Their remote results, however, may come to suggest strongly certain developmental anomalies. As good an example as any is seen in the fact that pathologic pigment on the lens capsule from past inflammatory synechiae tends after the lapse of years to assume a stellate form indistinguishable in appearance—though often not in position—from the congenital star-shaped pigment cells of minimal persistent pupillary membrane. Thus, a past attack of iritis may be misinterpreted and its possible present bearing on the case overlooked. An even more common dilemma—though likely to puzzle only the relatively inexperienced—is that of the diagnosis of medullated retinal nerve fibers from exudate due to inflammatory or vascular disturbance, especially should they occur in a patient with renal or cardiovascular disease. In dealing with this question of differential diagnosis it appears advisable to consider the commonest problems in the first place from their anatomic position. On this basis they can be divided into those involving the anterior parts of the eye and therefore visible by focal illumination, and those involving the fundus and visible only ophthalmoscopically. In some cases both situations present defects, the diagnosis thereby being rendered considerably easier, as when the presence of a doubtful pupillary membrane is made more certain by the presence of a coloboma of the disk in the same eye.

Diagnosis and Treatment of Pineal Tumors.—Harris and Cairns report the case of a youth, aged 20, with a history of four petit mal fits in four years, who complained of occasional giddiness on rising in the mornings and five months later began to have violent occipital headache. Papilledema developed rapidly, and localizing signs which were inconspicuous suggested a lesion of the posterior fossa or of the pineal gland. Cerebellar decompression was done seven months after the onset of symptoms without any tumor being found. There was rapid subsidence of papilledema with preservation of good vision, but signs of disturbance of the superior corpora quadrigemina at once began to appear. He remained well for five months but then had another attack of hydrocephalus and signs of pressure on the inferior corpora quadrigemina. At operation an apparently circumscribed pineal tumor was removed, but only after division of the right internal occipital vein near its point of entry into the vein of Galen. After operation there was on the left side hemiplegia and sensory loss which gradually recovered, and left homonymous hemianopia which remained complete. There was relief from headache and from deafness, but great unsteadiness in walking and disturbance of vision, although visual acuity was only moderately impaired. Nine months after the tumor had been removed, signs of recurrence became manifest. Under roentgen treatment there was rapid improvement, which was being maintained when the patient was last seen thirteen months after the second operation; that is, two years and seven months after the onset of symptoms.

Early Diagnosis of Whooping Cough.—Gardner and Leslie describe the bacteriologic method of diagnosis of whooping cough and report the results of more than 100 tests of suspected persons. These show that in the early stages of the disease at least three out of four cases can be detected by a single examination. The fourth eludes detection only because of human fallibility. The authors give reasons for the final acceptance of Hemophilus pertussis as the cause of whooping cough and emphasize the desirability of using antigenically efficient cultures in the manufacture of vaccines.

Treatment of Lobar Pneumonia by Artificial Pneumothorax.—According to Coghlan, the induction of artificial pneumothorax on the affected side in acute lobar pneumonia has the advantage that it (1) separates the inflamed pleural surfaces, relieves pain and allows of easy respiration, (2) puts the inflamed lung at rest, and (3) limits the flow of blood through the pneumonic lung, thereby diminishing anoxemia and interfering with the passage of toxins into the general circulation. From the experience gained in six cases, he draws certain conclusions as to the therapeutic results obtainable, and also as to the technic to be adopted to get the best results. The first and most obvious clinical result was that the induction of artificial pneumothorax initiated a series of events almost indistinguishable from the crisis which normally occurs in this disease. The second conclusion is that this control of the pneumonic process is at first only temporary, persisting merely as long as air remains in the pleural cavity. Since the absorptive capacity of the pleura in this disease is abnormally high—a factor which had not been suspected at the beginning of the investigations—the time taken to absorb the air is a matter of hours only, after which the pneumonic process becomes reestablished at its original level. By adequate refills, however, this return of the disease can be forestalled, and when the artificial pneumothorax control has been maintained for a sufficient length of time (forty-eight hours appears to be approximately correct) the pathologic process is definitely brought to an end, the air can be absorbed without any tendency to relapse, and convalescence proceeds normally. Resolution in the successful cases occurred more rapidly than usual, probably because, as the time of the disease was shortened, there was less damage done to the lungs and less exudate formed in the alveoli than if the pneumonia had been allowed to run its full course to a natural crisis. A striking feature of all the cases was the rapidity of the onset of the artificial crisis; profuse perspiration set in almost as the pneumothorax needle was withdrawn, and cyanosis and dyspnea were relieved in about fifteen to thirty minutes at most, causing corresponding subjective improvement. The fall of temperature was well established in from two to three hours, and the patient lost that appearance of acute distress characteristic of pneumonia. The following routine is proposed by the author for average cases: 1. Preliminary medication one hour before induction with one-fourth grain (0.016 Gm.) of morphine. 2. Thorough local anesthesia with procaine hydrochloride down to and including the parietal pleura. 3. Very thorough asepsis during induction. 4. A preliminary fill of from 400 to 600 cc. of air, run in very slowly during the negative phase of the pressure swing cycle, and with the needle clipped off during the high positive phases. 5. A second fill twelve hours later of from 300 to 500 cc. of air. 6. If the pneumonic process is not completely controlled, a third fill of from 100 to 150 cc. of air, which may be given in another twelve to eighteen hours. 7. Simultaneous exhibition of a suitable diaphoretic and of Felton's serum in appropriate cases at the discretion of the operator. Owing to the profuse perspiration, the comfort of the patient is much enhanced by warm sponging as needed and nursing between blankets. In cases in which it is deemed inadvisable to provoke defervescence by crisis, and a gradual fall by lysis is aimed at, three fills of from 100 to 150 cc. at intervals of six hours might be given and further treatment judged by results. No special points with regard to after-treatment were noted. Two patients were given blow-bottles with the idea of promoting reexpansion of the lung and absorption of any residual air, but this did not seem to be really necessary or to be of any particular advantage.

Medical Journal of Australia, Sydney

2: 767-798 (Dec. 19) 1931

Human and Murine Leprosy in Tropical Australia: Preliminary Notes and Observations. R. W. Cilento and E. A. North.—p. 767.
Plants, Including Fungi, Poisonous or Otherwise Injurious to Man in Australia. J. B. Cleland.—p. 775.
Some Observations on Bendien Test for Cancer. M. Freeman, H. F. Holden, W. W. Lempriere, R. K. Scott, F. E. Williams and C. H. Kellaway.—p. 778.
Bedside Blood Sugar Estimation: A New Clinical Method. B. Hunt.—p. 782.

South Africa M. Assn. Journal, Cape Town

5: 801-836 (Dec. 26) 1931

Our Medical Association. L. Herzenberg.—p. 801.
Record of One Hundred Cases of High and Low Spinal Anesthesia. H. Goldberg-Whyte and A. Radford.—p. 806.
Fever with Some Resemblance of Typhus Fever Occurring in Port Elizabeth and District. F. H. Scroggie.—p. 809.
Laboratory Investigations of Port Elizabeth Type of Fever. F. C. Gray.—p. 814.

National Medical Journal of China, Shanghai

17: 687-812 (Dec.) 1931

Subapical Form of Incipient Pulmonary Phthisis. G. F. Bume.—p. 687.
*Scleroma: Review with Report of Case in China. C. Z. Garber.—p. 701.
Rupture of Intestine Without External Wound: Four Cases. Chang-Ken Chi.—p. 722.
Study on Food Consumption of Omnivorous and Vegetarian Rats. Kuo-Hao Lin.—p. 729.
*Coccidioidal Endophthalmitis. C. H. Chou and F. Reiss.—p. 747.
Trachoma in China: Proposals for Uniform Recording and for Uniform Statistics. A. Pillat.—p. 755.
Public Health Laboratory: Its Nature, Functions and Management. S. M. Tao—p. 764.
Unusual Tuberculous Infection in an Infant. Case. H. J. K'ang.—p. 777.
*Relapsing Fever: Case in an Infant Aged Eight Days. Annie V. Scott.—p. 782.

Scleroma.—Garber reports an early case of scleroma. So far as he is aware, this is the first time the disease has been recorded in China. A review of the literature was made and showed among recent developments the establishment of the value of the complement fixation reaction in recognizing antibodies of the Frisch bacillus. The thionin stain is recommended as a useful stain for studying some aspects of the histology of scleroma. In agreement with the majority of writers the author finds that the "hyaline cells" are derived from plasma cells. His evidence for the origin of Mikulicz cells from connective tissue cells supports the views of the majority of others and disagrees with views held by some more recent writers. Transition forms between plasma cells and connective tissue cells have been observed. The perivascular formation of plasma cells in scleroma is dependent on the presence of mother cells closely associated with the blood vessel walls. The mother cells are not of endothelial origin.

Coccidioidal Endophthalmitis.—The first case of coccidioidal granuloma in China is described by Chou and Reiss in a girl aged 6 months. A metastatic endophthalmitis of the left eye from the primary lesion on the side of the thigh, followed by atrophy of the eyeball was observed. Cystlike double contoured bodies were found in all the lesions, and most of these bodies contained from fifteen to twenty endospores. Inoculations of pus into the rabbit, guinea-pig, and rat resulted in the death of these animals in about ten days. A typical lesion resulted from the intradermal injection of the culture in the arm of the patient and revealed the original organisms. All the lesions, including the eye condition, subsided rapidly in about one month's time after hypodermic injections of emetine hydrochloride.

Relapsing Fever.—Scott reports a case of relapsing fever, developing in an infant 8 days of age. The mother was in her initial attack of relapsing fever during labor, the first symptoms having developed two days prior to delivery. The infant probably received the infection through the umbilical blood during delivery or by transmission from the mother after birth.

Japanese J. of Obstet. and Gynecology, Kyoto

14: 478-553 (Dec.) 1931

Blood Groups in Obstetrics and Gynecology: IV. Effect of Homospecific and Heterospecific Pregnancies on Mother and Fetus. M. Oku.—p. 478.
Local Anesthesia in Cases of Uterine Operations. J. Toyoshima.—p. 485.
Cystic Kidney and Ulcus Ventriculi Complicating Pregnancy with Especial Reference to Relation Between Renal Function and Round Peptic Ulcer. M. Ikeda.—p. 489.
Weil's Disease Complicating Pregnancy. M. Oku.—p. 497.
Bacterial Toxins on Blood Vessels of Human Placenta. K. Ueda.—p. 502.
Effect of Medicaments on Fatigue of Uterine Muscle: I. On Uterus of Rabbit. H. Morimoto.—p. 508.
Investigation of Placental Ferments in Various Stages of Pregnancy. M. Abe.—p. 514.
Experimental Investigation of Hormonal Sterility, Especially Effect of Suprarenal Gland on Genital Function. J. Ogawa.—p. 521.
Endocrine Glands and Surface Tension of Blood Serum. J. Ogawa.—p. 544.

Presse Médicale, Paris

39: 1869-1884 (Dec. 19) 1931

*Eosinophilia in Malignant Tumors. M. Chiray and E. Baudouin. —p. 1869.
Pneumonoconiosis Among Asbestos Workers. A. Feil.—p. 1872.
Pathogenesis of Chronic (Lipoid) Nephrosis: Thyroid. E. Coelho and J. Rocheta.—p. 1875.
Diathermy in Treatment of Inflammatory Syndromes of Right Flank. P. Descoust and J. A. Huet.—p. 1877.

Eosinophilia in Malignant Tumors.—Chiray and Baudouin review the diseases in which eosinophilia is often observed. There is a slight and transitory eosinophilia during convalescence in infectious diseases, erysipelas, chickenpox, malaria, pneumonia, diphtheria and acute articular rheumatism. In septicemias the eosinophils are diminished during the active stage; their reappearance in all cases except those of endocarditis lenta is of favorable prognostic import. Eosinophilia is constantly present during the convalescent period of scarlet fever. From time to time an eosinophilia, possibly due to epiploitis or intestinal parasitism, is present in chronic appendicitis. Eosinophilia is noted at the end of acute attacks of tuberculosis, in the course of Addison's disease, in certain ovarian disorders and as a result of accidental or professional intoxication (hydrogen sulphide, arsphenamine, camphor, copper sulphate, benzene); in vesicular dermatoses, in foliaceous and vegetative pemphigus and in suppurations such as anthrax or phlegmons; also in anaphylactic diseases of the respiratory tract, such as asthma and hay fever. But eosinophilia does not seem to exist in attacks due to anaphylaxis of the digestive tract (urticaria, Quincke's edema, migraine) or in experimental hemoclastic crises. Only slight eosinophilia is present in skin diseases such as strophulus, eczema, herpes, psoriasis, tuberculous exanthems, lupus, erythema multiforme, sporotrichosis, mycosis and burns. Eosinophilia is important in the diagnosis of intestinal parasitism, particularly helminthiasis. It has been noted in myelogenous leukemia, in cardiac patients with asystole, in osteomalacia, and also during the course of pleural extravasations of indeterminate nature. The authors find that there is a leukocytosis and an eosinophilia in cancers, also, no matter where localized. Eosinophilia in neoplasms is only a secondary factor in the semeiology. They describe at great length a case of a febrile form of cancer of the pancreas, extending to the liver; the diagnosis was verified at operation. During the study the leukocytes went up from 7,200 to 28,000; the eosinophils increased from 19 to 41 and then to 70 and 80 per cent; the rest of the white cells were composed of lymphocytes and polymorphonuclear neutrophils, which descended from 46 to 28 and then 18 per cent. There was no anemia. The authors conclude that hyperleukocytosis in cancer is not a rare anomaly; that the leukocytosis in cancer is not neutrophilic but eosinophilic. Clinical and histologic examinations proved that the eosinophilia in the case described was directly or indirectly related to the cancer of the pancreas, to the secondary localization in the liver, or to the secondary abscess formation in the liver.

Revue de Chirurgie, Paris

50: 621-687 (Nov.) 1931

Polyposis of Rectum. M. S. Nowicki.—p. 621.
*Removal of Cervical Lymph Nodes. J. Heitz, E. Martin and P. Colson. —p. 655.
*Early Intervention in Knee Sprain. R. Leriche.—p. 678.

Removal of Cervical Lymph Nodes.—Heitz and his co-workers assert that treatment of epitheliomas of the mouth or of the upper digestive or respiratory tract should not be aimed at the primary lesion alone but ought to be preceded or followed by treatment of the cervical adenopathies usually also present but not always demonstrated on clinical examination. They consider the surgical technic, the principal characteristics of these adenopathies and the general principles that should guide treatment. The general principles that guide the surgery of cancer in general should be respected in surgery of cancerous adenopathies of the neck region. The two most important rules include, first, the removal of the whole mass *en bloc* and, second, performing a complete intervention. The authors resect the sternocleidomastoid muscle and the internal jugular vein; they consider it indispensable to keep in the muscular planes in all cervical curettages for cancerous adenopathies. The procedure for operation is always directed from the periphery toward the center (the carotid bifurcation). The description of the technic adopted by the authors during the last nine years includes, in order, the following: Incision of the teguments includes one incision that starts at the parotid depression just in front of the mastoid and extends down to the most medial part of the clavicle, half-way between the anterior and posterior borders of the sternocleidomastoid; it crosses very obliquely the direction of that muscle, coming closer to its anterior edge. A second incision starting from the chin is extended to meet the previous incision almost in the center. This incision should be made rapidly, cutting through the skin and the cutaneous muscles at once. This is followed by raising of the strips, low section of the sternocleidomastoid and the internal jugular vein, dissection of the lower carotid region and approaching the carotid bifurcation, submaxillary curettage, removal of the neoplastic mass, and drainage and suture. The authors discuss various methods and modifications and review three personal observations. In bilateral curettage, the second intervention should come from eight to fifteen days after the first. The dangers of bilateral curettage necessitate great caution: one internal jugular vein must always be conserved.

Early Intervention in Knee Sprain.—Leriche does not commend the usual caution which consists in reserving arthrotomy for the functionally grave sequelae. The factors of gravity are always present: The problem consists in knowing how to recognize, early, grave sprains from benign sprains. Grave sprains are those that are due to violent lateral distortion; those in which hemarthrosis returns rapidly after several punctures; those in which the roentgenogram taken after evacuation of the intra-articular fluid reveals a small detached bony fragment, generally at the level of the tibial spine. The author recalls (1929) five other observations besides the one he discusses in this report. In his present observation, a student presented a recurrent hemarthrosis. Intervention the eighth day after the accident resulted in the removal of a fragment as large as a hazelnut, which had become completely detached from the internal border of the patella, and three other small osteocartilaginous fragments in the articular cavity. The patient improved and returned in three months with the knee function normal.

Revue d'Orthopédie, etc., Paris

18: 649-876 (Nov.) 1931

*Vertebral Epiphysitis. P. Mocquot and J. Baumann.—p. 649.
Paralytic Patients Who Walk on All Fours. L. Michel and Arnulf. —p. 655.
Painful Lumbar Spina Bifida Occulta: Treatment by Laminectomy. E. Estor and H. Estor.—p. 664.
Congenital Unilateral Absence of Pectoral Muscles. P. Pétridis. —p. 669.
Study of Anomalies in Development of Spine. A. Reccandte.—p. 674.
Tuberculous Ostearthritis Deformans of Elbow: Intra-Epiphyseal Graft. R. Charry.—p. 679.
Fracture of Patella in Two Stages. G. le Bourgo and J. Perves. —p. 686.
*Dislocation of Foot by External Rotation. M. Boulay.—p. 691.

Vertebral Epiphysitis.—Mocquot and Baumann describe an example of what in the literature is designated as "painful vertebral epiphysitis of adolescence." The patient was a woman, aged 19, who complained of pain in the vertebral column, localized in the lower half of the thoracic region. These pains were sometimes intense, appeared without cause, and were especially exaggerated during fatigue; they awakened the patient with nocturnal paroxysms and were so great in intensity as to render work difficult. Roentgen examination demonstrated a peculiar aspect of the eighth vertebra. In the anterior and inferior portion of the vertebra there was a defect, a loss of substance filled by a small triangular shadow which seemed to complete the vertebral body but was separated from it by a clear space with parallel borders, about 2 mm. wide, directed obliquely down and backward. A. Mouchet diagnosed this as an interesting case of painful kyphosis with persistence in one vertebra of an inferior epiphyseal point of ossification that had remained isolated and had not fused with the rest of the body. This is similar to other dystrophies of the skeleton described as epiphysitis or apophysitis. The pathogenesis is uncertain; there is no proof of an infectious character, although the symptoms are similar to some manifestations in osteomyelitis. The diagnosis of Pott's disease could not be made since there was no definite localization of symptoms and no modification in reflex action.

Dislocation of Foot by External Rotation.—Boulay describes a case in which a man, weighing 82 Kg. (180 pounds), while carying a sack weighing 60 Kg. (132 pounds) down a stairway, twisted his left foot, its anterior face making with the leg an obtuse angle of 120 degrees. Reduction was accomplished easily under general anesthesia and the patient recovered after wearing a plaster-of-paris cast for fifteen days. The foot was doubtless dislocated by a rotation of the body carrying a heavy weight. In a vigorous man, the foot was fixed by muscular contraction and the rest of the body was twisted. The tibiofibular ligaments were certainly torn since there occurred rupture of the internal lateral ligament. The author believes this case to be an example of Huguier's dislocation.

Archivio di Patologia e Clinica Medica, Bologna

10: 375-482 (June) 1931

*Changes in the Blood and in Urinary Secretion After Introduction of Water into the Organism: Relations Between Hydremia and Urinary Secretion. G. Pellagrini.—p. 375.
*Basal Metabolism in Pulmonary Tuberculosis. G. Gherardini and G. D'Ignazio.—p. 426.
Clinical Aspects of Cancer of Lung. L. Winternitz.—p. 443.

Changes in Blood After Introduction of Water into the Organism.—Pellegrini, in studying the changes of the blood and of urinary secretion following the introduction of water by the enteral and parenteral route, in normal subjects and in subjects with edemas, observed the following facts: The parenteral introduction of physiologic solution of sodium chloride causes a dilution of the blood proportional to the relation between the quantity of water injected and the mass of the blood. In normal persons such dilution is greatest soon after the injection and decreases gradually and rapidly in from twenty-five to thirty minutes. In edemas due to diseases of the heart, the liver and the kidney, the dilution of the blood so provoked is often greater than is consistent with the quantity of water injected, owing to an afflux of water to the blood from the tissues. The duration of the dilution of the blood in edemas is notably more prolonged than normal and may last from five to six hours. The duration is longest in cases in which the water retention is more grave. With the enteral introduction of water, a dilution of the blood is induced that becomes slowly stabilized and reaches the maximum only after from twenty-five to thirty minutes, remains at the maximum for from twenty to thirty minutes, and then gradually drops down. The maximum attained is generally from 10 to 12 per cent; the total duration of the dilution is about two hours. In edemas the dilution reaches in some cases, owing to an afflux of water from the tissues, higher levels and lasts longer—more than six hours, in some cases. The duration is prolonged in cases with considerable water retention.

Basal Metabolism in Pulmonary Tuberculosis.—Gherardini and D'Ignazio, who investigated the basal metabolism in pulmonary tuberculosis, found it necessary to observe patients over a long period and to make several determinations to avoid the action of intervening factors and considering as habitual a basal exchange occasionally elevated. With this technic they confirmed the existence of increased values in the types with rapid evolution similar to the acute infections. This increase does not exist necessarily in all the forms of tuberculosis, even though they are definitely evolutive. In these cases a prolonged study enables the examiner to note the existence of constant fluctuations, which do not usually exceed the normal limit of error and which denote a peculiar instability of behavior.

Giornale di Clinica Medica, Parma

12: 1369-1448 (Dec. 30) 1931

Catatonia and Bulbocapnine. B. Spagnoli.—p. 1369.
*Behavior of Blood Catalase in Pneumonia Patients. A. Geremia.—p. 1406.

Behavior of Blood Catalase in Pneumonia Patients.—Geremia studied the behavior of the blood catalase in pneumonia patients during the height of the disease and also during defervescence. He observed an increase of the enzyme during resolution and a diminution in the fatal cases. He advances the hypothesis that the increase during the resolutive period is the expression of the cellular destructive processes through the absorption of the alveolar exudate, and that the diminution in the fatal cases is parallel to the weakening of the vital activity and to the disorganization and alveolar absorption.

Minerva Medica, Turin

2: 845-872 (Dec. 22) 1931

*Researches on Hemoglobin in Physiologic and Pathologic Conditions. G. Melli and F. Cantarutti.—p. 845.
Sulphopyretotherapy in Leukemia. G. Izar.—p. 856.
Tumor of the Middle and Posterior Cranial Fossae: Case. L. Ferrannini.—p. 860.

Research on Hemoglobin.—Melli and Cantarutti point out that a comparison of the iron and hemoglobin content of the blood and the quantity of oxygen under physiologic and pathologic conditions has shown that there is always a frank parallelism between the color of the hemoglobin and the quantity of oxygen fixed by it. Whereas in normal subjects the iron and hemoglobin values run closely parallel, the parallelism is plainly interrupted in pathologic cases. In pathologic cases it is probable that also in the adult there may be more than one type of hemoglobin; only the assumption of the existence of various hemoglobins of varying iron content will explain the observations made. It is impossible as yet to say anything in regard to the genesis and the significance of these assumed pathologic hemoglobins. Nor is it possible to say whether, under normal conditions, there is but one type of hemoglobin, or whether that which is commonly defined as such is only a mixture in fixed proportions of diverse types of hemoglobin. It is impossible to state definitely whether the variations noted under pathologic conditions are due to the appearance in the circulation of abnormal hemoglobins or simply to an altered quantitative relation between the supposed diverse normal hemoglobins.

Policlinico, Rome

30: 1-44 (Jan. 4) 1932. Practical Section

*Pneumotyphoid with Perforation of Pleural Cavity and Pyopneumothorax. V. Chini.—p. 3.
Giant Ovarian Cysts: Case. F. Benso.—p. 15.
*Staining of Microscopic Smears with an Indelible Pencil. F. Marta.—p. 18.

Pneumotyphoid with Perforation of Pleural Cavity and Pyopneumothorax.—Chini reports a case of pneumotyphoid in a woman, aged 55, which was peculiar in its mode of onset, its manifestations and its course. The transition from a state of well being to a state of disease was not sudden, and without any special manifestations or sensations. The patient stated that she thought she had had a slight fever for some time, and after a time began to complain of asthenia and anorexia; she had some attacks of dry cough, but no pain in the chest or "cold," though she had some pain in the limbs, a sense of heaviness in the epigastrium, nausea, and a slight pain in the abdomen. The temperature ranged from 37.5 to 37.8 C. (99.5 to 100 F.). The patient was treated symptomatically without benefit. Although the condition became worse, the patient continued to perform her usual duties as housekeeper. When night came, she was weary, sometimes almost exhausted. So it went on for two months, the temperature gradually rising and the gastric pain and the general fatigue and weakness increasing. Her physician sent her with a general diagnosis of "abdominal disease" to the surgical clinic. The temperature was then ranging from 39.2 to 39.7 C. (102.4 to 102.8 F.). Regarded as a patient with digestive tract involvement, she was subjected to systematic examinations of the digestive organs and their functioning. The examinations were negative, but a fluoroscopic examination of the chest revealed "a left basilar opacity," whereupon the patient was transferred to the general medical clinic. Later, it was found that a typhoid infection existed, not of the ordinary type but what may be called the "ambulatory" type, which enables the patient to continue for some time his usual occupation. But the ambulatory type is not, on that account, to be regarded as mild in comparison with the ordinary types, for, in some respects at least, it is more grave and dangerous. The virulence of the bacillus is not so great, but the disease is equally serious because the typhoid patient, not being recognized as such and not behaving as such, exhausts his physical and humoral resistance, while, at the same time, he is exposed to all the risks of an improper diet and thus to all the complications of that type of disease. This patient was an example of that. The author in this connection recalls a notion of general pathology according to which, for microorganisms not habitually pyogenic, the rule obtains (although not constant) that the pyogenic action corresponds to an attenuation of virulence. The author's patient, having suffered from dry pleurisy at the age of 26 and a left basilar bronchitis at the age of 40, may doubtless have presented in the lung an area of lessened resistance (which was more open to an attack by the circulating bacillus). The patient made a gradual recovery.

Staining of Smears with an Indelible Pencil.—Marta recommends an indelible copying pencil (more particularly, the blue, the violet or the green) for the staining of microscopic smears, as a pencil is always at hand, does not dry out and does not deteriorate as do solutions, and does not soil the hands. The method is simple. With the point of an ordinary copying pencil he places a drop of water on the slide, next to the smear. If the pencil is left in position for a few seconds, the drop of water assumes a sufficiently heavy color, which passes over the smear and stains it instantly.

Riforma Medica, Naples

47: 1887-1920 (Dec. 14) 1931

Should Uniglandular or Pluriglandular Theory Prevail in Pathogenesis of Pancreatic Diabetes? M. Bugano.—p. 1887.
Surgical Treatment of Deformities Caused by Poliomyelitis. P. del Torto.—p. 1891.
*Calcium Gluconate in Treatment of Gonorrhea and Its Complications. B. Cartia.—p. 1892.

Calcium Gluconate in Treatment of Gonorrhea.—Cartia gave twenty-two patients with gonorrhea or several of its acute complications (acute epididymitis, acute adnexitis, acute cystitis, bilateral arthritis of the knee associated with ostearthritis of the metatarsal region, and total, anterior or chronic urethritis) intravenous injections of from 5 to 10 cc. each of a 10 per cent solution of normal calcium gluconate. The number of injections varied from five to ten, given slowly, either daily or every other day. During the treatment, all general or local medication was discontinued. There were no untoward effects observed, with the exception of a patient who complained of a flushing sensation in his face while he was receiving the injection. In this case, after further dilution of the solution used and slower administration of the injection the redness and heat sensation of the patient's face did not appear again. Clinical and bacteriologic examinations were made in all cases for some time after the treatment was completed. The author concludes that the treatment with calcium gluconate without association with any other drug causes complete disappearance of acute gonococcal adnexitis and epididymitis, the therapeutic results of the treatment being as effective in such cases as those given by gonococcic vaccines or by protein therapy. However, the fact that calcium gluconate does not cause either local or general reactions, as do gonococcic vaccines and protein therapy, makes it preferable. The treatment may be given to ambulatory patients. Calcium gluconate has no therapeutic effect on gonococcal arthritis, cystitis and urethritis. It has, however, an analgesic action on the genital mucous membranes, which is especially favorable in cases of epididymitis and which attenuates the burning sensation during micturition in cases of cystitis or urethritis. It also diminishes the tenesmus and frequent urination coexistent with cystitis. In cases of urethritis, the urethral secretions continued without any clinical or bacteriologic modification both during and after the treatment. The treatment with calcium gluconate is ineffective in acute gonorrheal infections with localization in the genital mucous membranes. Its therapeutic effects on acute adnexitis and epididymitis may be considered as related to a specific chemotherapeutic action of the treatment on these conditions.

Cronica Médica, Valencia

35: 981-1064 (Dec. 15) 1931

*Promising Results of an Obstetric Procedure in Eighty Cases of Shoulder Presentation with Absence of Amniotic Fluid. L. Diaz.—p. 981.
Two New Modes of Palpebral Autoplasty. T. Blanco.—p. 987.
Surgery of Constipation. F. Martin Lagos.—p. 995.
Colorimetric Semimicromethods. J. Morera Arrix and V. Peset Llorca.—p. 1027.

Results of an Obstetric Procedure in Cases of Shoulder Presentation with Absence of Amniotic Fluid.—Diaz discusses the dangers inherent in this class of cases and the impossibility of performing a version without rupture of the uterus. The only alternatives have been cesarean section or embryotomy, and these interventions are not in the province of every practitioner. There remains now a new procedure to provide the uterus with the fluid medium necessary to permit version. This procedure requires a large caliber (number 25 to 29) Nélaton catheter, a 20 cc. glass syringe, a pair of uterine forceps and 1 liter of sterile physiologic solution of sodium chloride. After emptying the bladder and the rectum the patient is anesthetized and the position of the fetus verified. While the left hand steadies the fundus of the uterus, the right hand, holding the catheter between the first and the second finger, is introduced following the ventral aspect of the fetus and the catheter is left in the fundus. Uterine forceps are used to hold the catheter while the hand is pulled out only in case any difficulty is experienced in keeping the catheter in its place. Physiologic solution of sodium chloride is injected, 20 cc. at a time, until 500 cc. has been retained; the position of Trendelenburg may be resorted to, if necessary, to favor retention.

Folha Medica, Rio de Janeiro

13: 1-12 (Jan. 5) 1931. Partial Index

*Clinical Meaning of Severe Rectal Hemorrhages. R. Pitanga Santos.—p. 2.

Clinical Meaning of Severe Rectal Hemorrhages.—Pitanga Santos states that although small hemorrhages from the rectum are frequent, severe rectal hemorrhages are rare. The characteristics of one type are opposite to those of the other type. Without any previous symptom the patients are taken seriously ill with profuse perspiration, dizziness (which sometimes renders them unconscious), a marked tenesmus and an urgent necessity to defecate. Defecation does not require any effort and the evacuated material consists of large amounts of blood (both fluid blood and coagula). The elimination of massive amounts of blood is repeated at frequent intervals, so that in a few hours the patient's life is in danger if the hemorrhage is not checked. The diagnosis of this type of hemorrhage is easily made: The patient is asked to evacuate so that the rectum is free of any blood during the examination. The examination is made with a proctoscope with the patient placed in the genupectoral position. It is then discovered that the blood spurts from a large vessel ruptured in the center of an ulcer located in or near the ampulla of the rectum. The ideal treatment should be diathermic coagulation. When not available, the vessel should be clamped with a hemostat (of Kocher's type) or galvanocauterized. The author summarizes the clinical histories of four patients who had severe rectal hemorrhages. In two cases a large vessel of the hemorrhoidal venous plexus was ruptured in a chancroid of the anal canal which extended into the rectum; in the other two cases the ulcers, seat of the opened vessels, developed after trauma in one case and from a scar in the other case. None of the patients had cancer or cancerous lesions. The author calls attention to the clinical meaning of severe rectal hemorrhages, which have been considered heretofore as a clinical symptom of cancer of the rectum and which in his opinion should be regarded as a clinical symptom of ulcers of the rectum. His observations on the four patients mentioned, and on sixty-eight cases of cancer of the rectum (sixty in an advanced period and eight at the early period of development), support his opinion. Rectal hemorrhages rarely appear in cancer of the rectum or, if they do appear, they never are of a severe character. Loss of blood from hemorrhoids in patients with cancer of the rectum should not be confused with rectal hemorrhages of a cancerous origin. A clinical symptom of cancer of the rectum is a feeling of pressure of the lower part of the abdomen which appears early in the development of cancer of the rectum and is a constant complaint of the patient throughout the evolution of the disease.

Revista Médica de Barcelona

16: 537-632 (Dec.) 1931. Partial Index

*Roentgen Examination and Lavage of Seminal Vesicles in Chronic Gonorrhea. R. Campos Martin.—p. 539.

Roentgen Examination and Lavage of Seminal Vesicles in Chronic Gonorrhea.—Campos Martin states that when the clinical symptoms indicate the presence of gonococcal infection of the seminal vesicles as a complication of chronic gonorrhea, the roentgen examination of the vesicles is the most important diagnostic method available to ascertain their pathologic condition and whether the infection is unilateral or bilateral. Some other complications of chronic gonorrhea, such as gonococcal arthritis, are secondary to the gonococcal infection of the seminal vesicles and their symptoms are conditioned by the evolution of the seminal vesicle infection. The treatment (whether medical or surgical) of gonococcal infection of the seminal vesicles depends on the patency or obstruction of the vas deferens and of the ejaculatory duct. The author describes in detail the operative technic of lavage of the seminal vesicles with a 5 per cent solution of colloidal silver, to which he resorts as a medical treatment for gonococcal infection of the seminal vesicles whenever the vas deferens and the ejaculatory duct are opened. After having produced local anesthesia of the subcutaneous cellular tissues with a 1 per cent solution of procaine hydrochloride, he makes a longitudinal incision 2 or 3 cm. in length at the root of the testis in order to approach the vas deferens, through which he injects 8 or 10 cc. of the colloidal silver solution into the seminal vesicle, seat of the infection, as previously determined by the roentgen examination. When the roentgen examination shows that the infecion is bilateral, 8 or 10 cc. of the solution is injected into each vesicle. In making the injection, the author uses a common syringe with the finest needle. After having injected the solution, he withdraws the needle and closes the incision with three horsehair sutures. The patient remains in bed for five or six days, during which he receives small doses of opium to prevent any movement of the bowels which may cause a contraction on the seminal vesicles. The retention of the colloidal silver solution in the seminal vesicles during those days acts in a mechanism of complete disinfection of the vesicles. At the seventh day the patient is given a cathartic and under the influence of the contraction of the bowels the colloidal silver is eliminated through the urine. Whenever the patency of the ducts makes possible the *injection of the colloidal silver solution in the pathologic* vesicle (or in both if the infection is bilateral), the symptoms of gonococcal complications such as the pain in gonococcal arthritis, the shreds in the urine, or the gleet, previously present, disappear after the treatment, simultaneously with the improvement of the seminal vesicle symptoms. When the vas deferens and the ejaculatory duct are obstructed, or when the medical treatment fails and the infection of the seminal vesicles is acute, the treatment of gonococcal infection of the seminal vesicles must be surgical. However, the treatment gave good results in the author's cases.

Salvador Médico, San Salvador

10: 3-42 (Oct.) 1931. Partial Index

*Suppurative Pericarditis Complicating Bronchopleuropulmonary Diseases. L. E. Vasquez.—p. 6.

Suppurative Pericarditis Complicating Bronchopleuropulmonary Diseases.—Vasquez states that patients with acute diseases of the respiratory tract (pneumonia, bronchopneumonia, empyema) should be subjected as a routine to a careful examination of the heart by which the presence or absence of suppurative pericarditis may be ascertained. Suppurative pericarditis is a frequent complication of bronchopulmonary diseases and develops from a propagation of a pleural effusion during the transitional period from the stage of activity of the disease to the first few days of an apparently normal convalescence. Although the clinical symptoms are almost inconspicuous at the early period of the complication, they are precise enough to make a clinical diagnosis: Rotch's sign, either by itself or in association with Enart's sign, is always present; pericardial friction sounds are audible and dyspnea appears. Later on the pericardial friction sounds disappear, the dulness is generalized over the area of the heart and the dyspnea becomes so intense that the patient takes a characteristic position (the so-called sign of the pillow) frequently observed in patients with pericarditis with effusion. The sign may be described thus: The patient sits at the edge of the bed with a pillow on his lap and reclines his head on the pillow and as soon as he lies down he feels that asphyxia overcomes him. Early clinical diagnosis of this grave complication supported by roentgen diagnosis is of importance because a pericardiotomy is the only hope to save the patient's life. The operation is made with the patient in Fowler's position and with resection of a part of the fifth costal cartilage. After the purulent effusion is evacuated, a drainage tube is left in situ. Dyspnea is the first symptom that improves. The author summarizes the clinical histories of three patients, in two of whom a clinical diagnosis was made. The causative bacteria is the pneumococcus, which may be isolated from the pus of these effusions.

Semana Médica, Buenos Aires

38: 1893-1976 (Dec. 24) 1931

Modern Tendencies in the Teaching of Hygiene A. Zwanck.—p. 1893.
Gangrene of Extremities in Diabetic Patients. P. Escudero and G. Peco.—p. 1899.
Gangrene of Extremities in Nondiabetic Patients: Clinical Study. P. Escudero and G. Schultz Ortiz.—p. 1914.
Frequency of Parenchymatous Keratitis, Unilateral Argyll Robertson Pupil, Cyclitis and Glaucoma After Zona Ophthalmica. Paulina Satanowsky.—p. 1919.
Histopathology of Progressive and Symmetrical Lobar Sclerosis of Cerebral Cortex (Pick's Disease). B. A. Moyano.—p. 1921.
Sympathetic Nervous System in Gynecology. C. A. Castãno and A. Introzzi.—p. 1927.
Leprosy in Rosario. F. Carrillo, J. M. M. Fernández and S. Schujman. —p. 1932.
*Ventriculoscopy: New Method for Cerebral Symptomatology and Experimental Investigation. R. Orlando.—p. 1938.
*Endoscopy of Cerebral Ventricles. M. Balado.—p. 1942.
Local Anesthesia in Cervicosegmental Cesarean Section. D. A. Rojas. —p. 1949.
New Methods and Ideas in Obstetrics. D. E. Caravias.—p. 1955.
Affective Hypesthesia, Perversity, Epileptic Syndrome and Propensity to Lying in a Postencephalitic Patient. C. Fernandez Speroni and A. Huergo.—p. 1958.
Arterial Manometry. E. Debenedetti.—p. 1961.
Influence of Work on Daily Changes in Glycemic Curve of Diabetic Patients. F. W. Lapp and C. L. Torriani.—p. 1964.

Ventriculoscopy.—For the study of the physiology of the subcortical gray centers and the symptomatology of the cerebral ventricles, Orlando is convinced that reliable results can be obtained only when experiments are conducted under visual control. Ventriculoscopy can be done in patients with congenital hydrocephalus which will allow the introduction and necessary movements of the instrument with a minimum of trauma. The frontal and occipital ventricles and their extensions can be reached from the sagittal line, but the caudate nucleus and the thalamus must be approached through the frontal lobe. Ventriculography is first done to obtain the necessary information on the size, shape and position of the cerebral ventricles and especially of their frontal anterior horns. A point is marked 8 cm. above the superciliary arch and 1.5 cm. from the frontal suture on the side of the ventricle to be explored. A line from this point to the external auditory meatus and a horizontal line through the meatus will form an angle of about 45 degrees. Comparison of this angle with a similar one on the lateral ventriculograms will give exact indications on the direction and angle to be given to the needles and the illuminating instrument in order to penetrate the selected ventricle. With the patient prone, the chin well advanced and secured in order to immobilize the head, trepanation over the marked point is performed, the dura mater incised crosswise and a needle introduced until it reaches the ventricle, when some of the cerebrospinal fluid will escape. A second needle is introduced 3 mm. from the first one: the two needles serve as guides for the ventriculoscope, which in reality is a cystoscope of small caliber. The author describes his first attempt at ventriculoscopy in the living and its unqualified success, and he indicates the practicability of introducing electrodes through the ventriculoscope for experimental purposes.

Endoscopy of Cerebral Ventricles.—Balado points out that, as endoscopy destroys necessarily a certain amount of cerebral tissue, it should be performed through those cortical zones in which loss of tissue is of lesser importance. The endoscope must dispose of an area 1 cm. square in order to move around easily in the ventricles and should consequently be used only in hydrocephalic patients. He describes in detail the anatomic formation of the ventricles and the different structures to be observed. To perform the endoscopy of the occipital and sphenoidal ventricles, he makes a horizontal incision of 6 cm. at two fingerbreadths from the median line and two fingerbreadths above the superior occipital protuberance, trephines at the center of the incision, opens the dura mater crosswise, passes a needle into the ventricle to confirm the presence of hydrocephalus, and chooses the most avascular point for the introduction of the endoscope. He outlines the anatomic landmarks and peculiarities that present themselves to view.

as he advances and turns the endoscope into the ventricle to explore it thoroughly and concludes his article with a review of the indications for endoscopy. These are (1) exploration to find anatomic lesions and to institute their treatment; (2) direct treatment of lesions situated in the ventricle: lesions of the choroid plexus, inflammatory lesions of the ventricle, catheterization of the foramen of Monro, tumors; (3) experiments on anatomic structures by electrical stimulation or extirpation. The author recommends endoscopy as a regular procedure in cerebral exploration provided the size of the ventricles allows its feasibility.

38: 1977-2048 (Dec. 31) 1931

Kidney Diseases of Infancy. M. Acuña and A. Casaubón.—p. 1977.
*Malariotherapy in Dementia Paralytica Complicated with Diabetes Mellitus. J. M. Obarrio and A. J. Petre.—p. 1989.
Fatal Serum Disease. R. F. Vaccarezza and J. Peroncini.—p. 1993.
Venous Pressure in Pulmonary Tuberculosis. C. Floriani.—p. 1995.
Pleuropulmonary Fistula with Case Report. I. R. Steinberg.—p. 2004.
*Intoxication of Pregnancy. F. A. Deluca.—p. 2008.
Dextrose-Insulin Therapy in Cardiac Insufficiency: Fundamentals, Technic and Results. M. Joselevich.—p. 2010.
Raynaud's Syndrome in a Nursling Aged 20 Months. M. H. Bortagaray. —p. 2023.
Appendicitis with Hepatic Complications. C. M. Casco.—p. 2024.
Primary Carcinoma of Appendix. O. F. Mazzini, D. Brachetto-Brian and A. Ballestrasse.—p. 2029.
Carcinoma of Lower Lip. P. Pereyra and M. Vignoles.—p. 2034.
*Jejuno-Ileac Stenosis: Roentgenographic Diagnosis. A. A. Salvati. —p. 2034.
Chronic Appendicitis with Obscure Clinical Symptoms. V. H. Locatelli. —p. 2036.
Sterilization of Lassar's Paste. A. J. Bandoni and Teresa Satriano. —p. 2040.
Fossils of Vertebrates in Maritime Layer of Upper Pliocene of Buenos Aires. C. Rusconi.—p. 2042.

Malariotherapy in Dementia Paralytica Complicated with Diabetes Mellitus.—According to Obarrio and Petre, diabetes is a rare complication of dementia paralytica and is their reason for describing the course followed in treating their patient. This man, aged 39, was given insulin adjusted to a regular stated diet and kept on it until undoubtedly balanced, when malariotherapy was instituted. After six typical malarial attacks, administration of quinine was initiated and during the attacks the patient was put on a milk diet with appropriate doses of insulin. Twice later he was reinoculated with malaria but after three and two attacks, respectively, his temperature returned to normal of its own accord. When discharged, his mental condition was considered satisfactory. The patient was readmitted to the hospital two months later suffering from the results of exaggerated doses of insulin and from renewed mental deterioration. During his second sojourn in the hospital he developed xanthodermia from the carotene pigments of spinach which he was eating twice daily, and duodenal intubation gradually reduced his glycemia. The authors conclude with the following remarks: (1) Association of diabetes with dementia paralytica is extremely rare; (2) diabetes is not a contraindication to the malariotherapy of dementia paralytica provided the necessary precautionary measures are taken; (3) specific treatment given before malariotherapy and subsequent treatment have not modified the diabetes of the patient; (4) xanthodermia was due to carotene pigment of spinach; (5) duodenal intubation has favorably modified the glycemia of the patient.

Intoxication of Pregnancy.—In 1925, Deluca concluded a study of blood groupings with the remark that eclampsia might be due to the fact that mother and child belong to different blood groups. Blood group heredity, similarity of blood grouping in monozygotic twins, and dissimilarity of blood grouping of mother and child in cases of intoxication of pregnancy have been observed by different authors. These authors think that the cause of eclampsia is to be found in the incompatibility between the blood groups of mother and fetus because the red corpuscles of the latter are agglutinated by those of the mother; this presupposes the passage of fetal blood into the maternal circulation through the placenta. Deluca agrees with Lattes and admits by extension a cellular grouping parallel to the blood grouping in which detached chorial cells (fetal albumin) pass into the maternal blood stream and produce the symptoms. Consequently intoxication of pregnancy, including eclampsia, is the result of an incompatibility of the cells of the mother and the fetus and not of their blood.

Jejuno-Ileac Stenosis.—Salvati reviews some of the anatomic peculiarities of the small intestine and their roentgenographic appearance after a barium meal and states that slowly progressive chronic stenosis of the jejuno-ileum presents the following roentgenographic characteristics: 1. Dilatation of the intestinal loops, which may become as wide as and even wider than the colon; if dilatation is found only above the stricture, the caliber becomes considerable. 2. Hydrogaseous appearance of the loops, showing a light upper and an opaque lower part; the loops are of varying shape and situated on different levels which differentiate them from those of the colon. 3. Exaggerated peristalsis. Differential diagnosis: 1. In stenosis of the colon, an opaque enema will be stopped at the constriction while an opaque meal will not be retarded in its passage through the jejuno-ileum. 2. In segmental dilatations of the small intestine, without stenosis, due to chronic mesenteritis, short, uniformly dilated loops will be found mixed up with normal ones, while in stenosis the caliber of the loops increases as they approach the constriction and there is evidence of exaggerated peristalsis. Dilatation of intestinal loops is also encountered in constitutional intestinal atony and in uncompensated cardiac diseases.

Archiv für Gynäkologie, Berlin

147: 549-855 (Dec. 22) 1931

Genital Cycle and Pregnancy in White Mice. C. Clauberg.—p. 549.
Similarity of Clinical Symptoms of Nephropathy and Eclampsia in Gravidas with Actions of Hormone of Posterior Lobe of Hypophysis. K. J. Anselmino and F. Hoffmann.—p. 597.
Demonstration of Antidiuretic Component of Hormone of Posterior Lobe of Hypophysis and of a Blood Pressure Increasing Substance in Blood in Nephropathy and Eclampsia. F. Hoffmann and K. J. Anselmino. —p. 604.
*Increase of Hormone of Posterior Lobe of Hypophysis in Blood of Gravidas and Its Relation to Type and Severity of Clinical Manifestations in Nephropathy and Eclampsia. K. J. Anselmino and F. Hoffmann.—p. 621.
Demonstration of Change of Thyroidal Hormone Content in Blood During Nephropathy and Eclampsia in Gravidas. F. Hoffmann and K. J. Anselmino.—p. 645.
Development of Nephropathy and Eclampsia of Gravidas by Hyperfunction of Posterior Lobe of Hypophysis. K. J. Anselmino and F. Hoffmann.—p. 652.
Results of Intravenous Pyelography and Roentgenologic Sufficiency Test of Vesical Ostia of Ureters in Pyelitis Gravidarum. P. Schumacher. —p. 662.
Reid Hunt's Reaction and Eclampsia: Functional Test of Thyroid. H. O. Kleine.—p. 675.
*First Observation of Neuroma in Uterine Wall. H. O. Kleine.—p. 680.
*Significance of Supernumerary Passages in Uterine Tube for Nidation in Tube. H. O. Kleine.—p. 688.
Varieties of Anastomoses Between Ovarian and Uterine Arteries. R. Joachimovits. —p. 697.
Extirpation of Uterus and Vagina in Complete Prolapse in Senility. A. I. Sserebroff.—p. 717.
Histologic Changes in Endometrioid Heterotopy During Various Phases of Menstrual Cycle. J. Schereschewsky.—p. 724.
Granulosa Cell Tumor During Childhood. J. Pahl.—p. 736.
Action of Hormones of Anterior Lobe of Hypophysis on Ovary. P. Wirz and H. Goecke.—p. 751.
Zárate's Technic of Partial Symphysiotomy. E. Zárate.—p. 759.
Stasis Infarction of Ovaries in Thrombosis of Ovarian Vein. L. Haslhofer.—p. 768.
Changes of Size, Form and Position of Pregnant Uterus. B. A. Libow.—p. 773.
Upper Urinary Passages During Pregnancy. E. A. J. M. Hanlo. —p. 797.
Etiology of Nymphomania in Cows. W. Frei.—p. 836.

Hormone of Posterior Lobe of Hypophysis in Blood of Gravidas.—Anselmino and Hoffmann determined the antidiuretic component of the hormone of the posterior lobe of the hypophysis and the blood pressure increasing substance in the blood of twenty-one gravidas with nephropathy and eclampsia. The demonstration of the antidiuretic substance was possible in nearly all cases with edema. In severe cases the quantity of the antidiuretic substance was larger than in mild cases. From twenty to thirty hours after delivery the antidiuretic substance had generally disappeared from the blood, except in one case of puerperal eclampsia. In the blood of healthy gravidas and of gravidas with dropsy, the antidiuretic substance could not be demonstrated. The authors show that there is a relation between the content of the blood in the antidiuretic substance and the severity of the clinical symptoms, for usually when an improvement was observed there was also a decrease in the antidiuretic substance. The blood pressure increasing substance was demonstrable in all cases in which the blood pressure exceeded 180 mm. of mercury. It was also obs that the antidiuretic component of the hormone of the posterior pituitary and the blood pressure increasing substance may occur in the blood independent of each other.

Neuroma in Uterine Wall.—Kleine observed a true neuroma in the uterine wall of a woman, aged 44, who had had fifteen normal confinements. The size of the tumor exceeded that of an ostrich's egg. Besides a fibromyxochondroplastic sarcoma, the tumor contained a myelinic neuroma free from ganglion cells. The neuroma had undergone necrobiotic changes; it was in the fundus uteri, was covered by the serosa, and was separated from the sarcoma tissue by calcium strands and by myometrium tissue. In spite of the fact that mesodermal mixed tumors are usually highly malignant, the patient was free from relapse and from metastases two years after the operation.

Supernumerary Passages in Uterine Tube. — Kleine shows the significance of supernumerary passages in the uterine tube for the etiology of tubal pregnancy. The histologic studies were made on a gravid and on a nongravid tube. In both of them there were accessory passages between the main lumen and the outer surface of the tube. In the nongravid tube the accessory passage was in the pars isthmica, in the gravid tube the accessory passage reached from the pars isthmica to the proximal portion of the pars ampullaris. Noteworthy was the extensive decidual reaction in the mucous membrane of the passage accessory to the gravid oviduct. Since the abdominal ostium of this tube was closed, the invasion of the ovum must have taken place by way of the accessory passage. The author shows that the development of epithelial passages in the tubal wall is not due to a primary developmental disturbance but is the result of previous endomyosalpingitic disintegration of the sues.

Klinische Wochenschrift, Berlin

11: 1-48 (Jan. 2) 1932

ariability and Heredity in Micro-Organisms: Significance for Medicine. V. Jollos.—p. 1.
dine Content of Blood. A. Schittenhelm and B. Eisler.—p. 6.
ction of Epinephrine on Iodine Content of Blood. A. Schittenhelm and B. Eisler.—p. 9
hyroxine and Central Nervous System. A. Schittenhelm and B. Eisler.—p. 9.
igment Formation in Skin with Especial Consideration of Optic Specificity of Dopa-Oxydase. Bloch and F. Schaaf.—p. 10.
ptic Specificity of Dopa-Oxydase. S. M. Peck, H. Sobotka and J. Kahn.—p. 14.
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isturbances of Carbohydrate Metabolism, of Acid-Base Economy and of Gas Exchange by "Avertin" Anesthesia: Its Modification by Oxygen and Carbon Dioxide Inhalation. H. Fuss and E. Derra.—p. 19.
aroxysmal Galactosuria: Problem of Renal Elimination of Sugar. H. W. Bansi.—p. 21.
nfluence of Temperature of Abdominal Cavity on Fertilization Capacity and on Motility of Spermatozoa. H. Knaus.—p. 22.
nesthesia with "Avertin": Review of North American Literature and Personal Experiences. E. F. Goldschmidt and S. C. Harvey.—p. 23.

Iodine Content of Blood.—Schittenhelm and Eisler point t that it has been established that administration of iodine fluences the activity of the thyroid. In diseases of the yroid or in those disorders in which the thyroid is considered e causal factor, the iodine metabolism is therefore given reful attention. However, the authors emphasize that it is not necessarily the thyroid alone which regulates the iodine content of the organism; on the contrary, it has been found that the thyroidal hormone is stored in certain portions of the central nervous system, especially in the midbrain-hypophyseal system. The authors tested the iodine content of the blood in patients with exophthalmic goiter and found it increased in all patients who had not received treatment. However, they also observed that the iodine content of the blood may be increased in persons without the signs of exophthalmic goiter; namely, in persons with the signs of vegetative stigmatization. Whether in these persons the increased iodine content of the blood is of central or of sympathetic origin cannot be determined. The authors further report that tests on patients with myxedema and on those with endogenic obesity revealed a reduced iodine content of the blood. They also point out that their former studies on thyroxine and the central nervous system may be helpful in explaining cerebral obesity. They think that in order to decide whether obesity is thyrogenic it is necessary to determine the iodine content of the blood. In all other endocrinous diseases, especially in diseases of the hypophysis, the iodine content of the blood was normal. In the conclusion the authors show that the determination of the iodine content has not only a nosologic significance but also diagnostic value. They consider it more valuable than the determination of the basal metabolism, for the latter only indicates the condition of the organism as a whole, whereas the iodine content of the blood gives information about the intermediary processes. Both tests are helpful in estimating a disease condition; however, the causal genetic factor, the intermediary condition, is, especially for the diagnosis, more important than the general reaction of the organism.

Monatsschrift f. Geburtshülfe u. Gynäkologie, Berlin

90: 1-258 (Jan.) 1932

*Histologic Evaluation of Uterine Cancer for Ray Therapy. A. Döderlein.—p. 9.
Formation of Artificial Vagina. W. Stoeckel.—p. 23.
Delivery of Primiparas with Normal Pelvis in Whom at Beginning of Labor the Head Is Still Above Pelvic Inlet. O. Pankow.—p. 33.
Technic of Extraction in Pelvic Presentation. L. Nürnberger.—p. 42.
*Simplified Improved Method of Local Anesthesia in Gynecologic Abdominal Operations. J. Frigyesi.—p. 65.
Heart Action in Early Pregnancy During Rest and After Work Tests. R. H. Schmidt.—p. 83.
Medicolegal Aspects of Operative Sterilization. A. Mayer.—p. 99.
Loss of Blood and Its Replacement. E. Holzbach.—p. 126.
Reliability of Sach's Floating Test for Recognition of Completeness of Placenta. M. Fetzer and H. Labes.—p. 140.
Methods of Examination of Childless Couples. G. L. Moench.—p. 150.
Lead of Parietal Bones as First Physiologic Sign of Spontaneous Delivery. W. Lüttge.—p. 159.
Significance of Various Sections of Spectrum for Growth and Development in Plant and Animal Life. H. Küstner.—p. 163.
Biology of Mamma. K. Heim.—p. 172.
Function of Ovaries Following Removal of Uterus. H. Siedentopt.—p. 197.
Morphologic Relations Between Corpus Luteum and Follicle Apparatus During Pregnancy. R. Börner and F. Klink.—p. 209.
Aspects of Leukocytosis During Pregnancy and Confinement. E. Fauvet.—p. 220.

Histologic Evaluation of Uterine Carcinoma for Ray Therapy.—As the first reason why he considers histologic examination of uterine carcinoma necessary, Döderlein gives the verification of the diagnosis. He himself has microscopic preparations of all cases of uterine carcinoma that came under his observation, about 4,000 in all. Thus he can always give the anatomic proof for his diagnosis. The significance of the morphologic diagnosis of cancer has also been stressed by the radiologic commission of the League of Nations. To the objection that the exploratory excision involves certain dangers, the author states that biopsy by means of the diathermic loop eliminates most of the dangers. Histologic examination is also helpful in controlling the effects of the irradiation, and it has shown the necessity of the morphologic differentiation of the various types of cancer. In discussing the different forms of cancer, the author mentions the problem of ray susceptibility. He shows that the opinions about this question differ widely. To make a correct evaluation possible, he considers it necessary that whenever ray susceptibility is discussed the technic of treatment with radioactive substances should be described in detail. To give only the number of milligram hours is not sufficient, for 100 mg. of radium element applied for twenty hours and 20 mg. applied for 100 hours both give a total of 200 milligram hours, yet there is a vast difference between the two. For whereas the first method, when applied with suitable filter and at the right distance, gives good results, the much longer application of the smaller quantity is much less effective and even harmful. For the determination of the cure of cancer the author considers histologic examination as not entirely reliable but stresses that in statistical reports only those cases should be listed as cured in which five years of observation after conclusion of the treatment has proved the absence of cancer symptoms.

Method of Local Anesthesia in Gynecologic Abdominal Operations.—Frigyesi designates his method as the lower abdominal anesthesia. The technic of this new method is almost the same as in hypogastric nerve anesthesia. The only difference is that the 30 cc. of the 0.5 per cent solution of procaine hydrochloride is deposited on the lateral surface not of the fifth but rather of the third lumbar vertebra. After describing the technic in detail the author gives tabular reports of the 112 surgical interventions in which he employed this method; namely, in ventrifixations, in ventrifixations and appendectomies, in adnexotomies, in supravaginal amputations, in total extirpations of the uterus by means of laparotomy, in Wertheim's radical operations, in cesarean sections and in vaginal operations.

Zeitschrift für Kinderheilkunde, Berlin

32: 165-298 (Jan. 2) 1932

Blanching Phenomenon in Scarlet Fever as Immunity Phenomenon. F. von Bormann and A. Wolff-Eisner.—p. 165.
Physiology of Digestion in Nurslings. G. R. Russel.—p. 201.
Bactericidal Action of Duodenal Juice of Nurslings. W. Keller.—p. 210.
Modification of Diphtheria Antitoxin Titer by Protein Bodies. E. Lorenz.—p. 234.
*Modification of Digestibility of Cow's Milk by Addition of Diluents. W. Krane.—p. 245.
Modification of Tetanus by Intercurrent Infectious Diseases. A. Hochwald and O. Saxl.—p. 260.
Pneumococcus Infections During Childhood. M. Gundel and W. Schaefer.—p. 269.

Modification of Digestibility of Cow's Milk.—Krane examined the following milk mixtures: milk and water, milk and rice gruel, milk and coffee, milk and barley coffee, milk and black tea, milk and fennel tea, and milk with a 0.5 per cent solution of sodium citrate. In the last series of tests he also examined undiluted milk and a milk-citrate-citric acid solution. The digestibility of the milk mixtures was tested by adding hydrochloric acid pepsin solutions. The author's observations are summed up as follows: If increasing quantities of hydrochloric acid are added to the milk mixtures, the curdled protein changes into an emulsion-like substance. This change does not take place at once in the total quantity of protein, but it increases gradually with the increasing concentration of the added hydrochloric acid until the change is complete. During the change of phases in the dispersion of the milk protein, a binding of free hydrogen ions takes place and it is concluded that the chemical foundation of the process, which appears as the change of phases in the protein dispersion, is the formation of acid albumins. The most suitable diluents of milk are gruel and barley coffee. On the other hand, the digestibility of milk is unfavorably influenced by such additions as coffee and tea. The reduction in the digestibility of milk produced by them is traced to the tannin content of coffee and tea. The assertion that barley coffee is the best diluent has no foundation, since any gruel has the same favorable effect on the digestibility of milk. It is not permissible to base the estimation of the digestibility of a milk mixture merely on the form of the coagulation.

Zeitschrift für Kreislaufforschung, Dresden

24: 1-32 (Jan. 1) 1932

*Gummatous Myocarditis with Adams-Stokes Syndrome and Syphilitic Mesopulmonitis. E. Kux.—p. 1.
*Spontaneous Rupture of Heart. A. Tzankoff.—p. 12.

Gummatous Myocarditis with Adams-Stokes Syndrome and Syphilitic Mesopulmonitis.—Kux observed in a woman, aged 51, who for years had been subject to heart disease, and who had a strongly positive syphilitic reaction, the Adams-Stokes syndrome during a complete auriculoventricular dissociation with about 35 ventricular contractions per minute. The development of an Adams-Stokes attack must be traced at least partly to disturbances of the type of "block in block" since a preautomatic pause was not present, at least not during the attack that was registered on the electrocardiograph. The woman died during an Adams-Stokes attack and the necropsy revealed a gummatous endocarditis of the tricuspid valve, a partly gummatous and partly fibrous myocarditis especially of the right side of the heart, and a gummatous pulmonitis. There also existed a syphilitic mesaortitis with atherosclerosis. Histologic examination of the cardiac septum revealed that gummatous nodules and indurations had led to complete interruption of the common trunk of the bundle of His below the atrioventricular node.

Spontaneous Rupture of Heart.—Tzankoff reports the clinical histories and the results of the necropsies of three cases of spontaneous rupture of the heart. In the first two cases the rupture resulted from a coronary occlusion; in the third case it followed malignant endocarditis and aortic stenosis, the latter causing an increased pressure in the left ventricle. In a general discussion on spontaneous ruptures of the heart, the author maintains that coronary disorders are the most frequent cause. As the rarer causes of spontaneous cardiac ruptures he mentions abscesses or echinococcus cysts of the cardiac wall, syphilitic changes, carcinoma and ulcerations, which originate in the endocardium or in the pericardium, and brown atrophy of the cardiac muscle. In discussing the sites of predilection for spontaneous ruptures he states that it is more frequent in the ventricles than in the auricles, and that it occurs more often in the left ventricle than in the right one. In the left ventricle there are two sites of predilection; namely, the lower third of the anterior wall and the upper third of the posterior wall. The last named localization is much rarer than the first. The symptomatology of the spontaneous ruptures varies. In a small number of cases the premonitory symptoms are slight or entirely absent, and the rupture presents the aspects of an acute heart failure. However, in the majority of cases the patient shows for weeks or even for months the symptoms of angina pectoris. A simultaneously existing increase in temperature indicates an organic origin of the attack of angina pectoris. The author also points out that coronary thrombosis has a typical electrocardiogram, the T deflection being negative and comparatively pointed.

Zentralblatt für Chirurgie, Leipzig

59: 1-64 (Jan. 2) 1932

Habitual Dislocations: Studies on Twins. P. Blümel.—p. 9.
Diagnosis and Therapy of Cystic Liver. R. Ritter.—p. 15.
Suitable Drill for Use in Joseph's Operation for Habitual Dislocation of Shoulder. H. Köhler.—p. 24.
*New Approach to Hypogastric Plexus. J. Vorschütz.—p. 25.
*Unusual Aspect of Calcification in Thoracic Cavity. R. Hubrich.—p. 30.
Danger of Anaphylaxis Following Injection of Coli Serum. A. Peters.—p. 33.
Technic of Microscopic Examination of Vermiform Appendix. H. Junghanns.—p. 35.

New Approach to Hypogastric Plexus.—In the introduction, Vorschütz discusses the innervation of the pelvic viscera and shows that it is controlled mainly by the hypogastric plexus. By anesthetization of this plexus, pains in the pelvic organs can be counteracted, and for this reason many gynecologists conclude their operations with an injection into the region of the promontory. However, if the abdominal cavity has not been opened, it is comparatively difficult to reach the plexus. The author reviews the methods of different authorities and then describes his own procedure. He approaches the plexus from below, by way of the colon. After the colon has been thoroughly cleaned the patient lies on the left side, the legs flexed on the thighs and thighs flexed on the abdomen. The approach is by way of the incisura ischiadica. Following anesthetization of the point of puncture a nickel-plated steel needle, 14 cm. in length, is introduced between the os sacrum and the coccyx, 6.5 cm. to the right of the median line, so that it points toward the promontory. At a depth of 12 cm. the promontory is reached. When the needle point has reached the bone, it is retracted from 1 to 2 mm., and then the injection is made and the fluid spreads in all directions, also upward to the aortic plexus. In this manner all the nerves in this region are anesthetized. The author made this injection particularly in women with backache when pathologic changes were not detectable in the pelvic organs. In these usually neurotic patients, the pains could be overcome at least temporarily. However, for surgical purposes the author did not resort to this injection of the hypogastric plexus. He further discusses the anesthetization of the solar ganglion in painful conditions following extirpation of the gallbladder, and also in certain gastric pains. But since the injection effects only temporary anesthesia it is not satisfactory in painful conditions of long duration, such as tuberculosis of the bladder, or in inoperable cancers. In such cases only the permanent exclusion is effective, and the author discusses the advisability of extirpation of the plexus, citing the opinion of different authors. He concludes that temporary as well as permanent anesthesia can be produced without impairing the function of the bladder, the colon or the generative apparatus.

Unusual Aspect of Calcification in Thoracic Cavity.—Hubrich reports the case of a woman, aged 43, who was subjected to a roentgen examination prior to a goiter operation. During this examination a dense shadow was observed in the left upper portion of the thorax. Roentgenologic examination of the lung revealed that the calcification was not merely a surface and belonged neither to the anterior nor to the posterior pleura, but that it had a more spatial character and was surrounded by pulmonary tissue. The anamnesis revealed that, twenty-four years before, the woman had fallen from a ladder and after that had felt piercing pains in the left side of the chest. At that time the woman had been hospitalized for six weeks, but definite information was not obtainable about the character of the exudate at that time. The author assumes that the pulmonary injury had caused a hematoma, which led to destruction and necrosis of the pulmonary parenchyma and later to calcification. For the differentiation of this form of calcification from calcifications of pleural indurations it should be considered that, whereas the pleural calcifications appear as surfaces, the others have a more spatial character.

Zentralblatt für Gynäkologie, Leipzig

56: 1-64 (Jan. 2) 1932

*Entrance into Pelvis of Fetal Head a Not Sufficiently Considered Phase of Birth. C. J. Gauss.—p. 1.
Reduction of Dangers of Childbirth. H. Sellheim.—p. 12.
Remnants of Placenta Vessels in Uterine Mucous Membrane Obtained by Curettage. H. Beitzke.—p. 14.
Beriberi as Complication of Pregnancy and Confinement. N. J. A. F. Boerma.—p. 18.
Fatal Complications of Pregnancy with Aspects of Acute Myeloid Leukemia. K. Heim.—p. 22.
*Ulcerations on Portio Vaginalis as Sign of Disease of Blood. K. Habbe.—p. 30.
Modification of Sexual Function of Young Male Animals by Prolan. H. O. Neumann and F. Peter.—p. 34.
Fetal Peritonitis and Hydramnion. J. G. Geerling.—p. 40.
Roentgenologic Demonstration and Course of Bone Diseases in Carcinoma of Uterus. E. Philipp.—p. 45.
Specific Treatment of Chronic Gonorrhea in Women by Means of Soluble Gonococcal Toxin. K. Retzlaff.—p. 58.

Entrance into Pelvis of Fetal Head.—Gauss calls attenion to what he terms the "entrance effect," that is, to that hase of labor when the head of the child, after having stood or some time above the pelvic inlet, suddenly, as with a jerk, nters the pelvis. This process involves dangers for the child, specially in case of a narrow pelvis, and during this period he control of the fetal heart sounds is of greatest significance. 'he author mentions the following signs as indicating that the hild is in danger: prolapse of the umbilical cord, constant liminution of the fetal heart beats to less than 100 per minute r their constant increase to more than 160, marked fluctuaions of more than 40 beats, great irregularity of the heart ounds, and discharge of meconium. On the basis of his obserations he considers it advisable to hasten the process of delivry by employing forceps whenever the fetal heart sounds ppear disturbed for some time after the fetal head has entered he pelvis. In the last part of the article he discusses the auses of the entrance effect. He is not certain whether the great pressure at the pelvic inlet or the sudden decrease in pressure after entrance into the pelvis or perhaps both factors are responsible for it, but he emphasizes the necessity of special watchfulness during this phase of birth.

Ulcerations on Portio Vaginalis as Sign of Disease of Blood.—Habbe describes the clinical history of a woman, aged 32, who during recent months had become weak and had lost in weight. She then became ill with high fever, hemorrhages of the oral mucous membrane, and ulcerations on the nose and upper lip. The physician in charge diagnosed a pneumonia and because of genital hemorrhages he thought of septic abortion and sent the woman to the clinic. The author describes the results of the general examination on admission to the clinic. Gynecologic examination revealed on the portio vaginalis bleeding and disintegrating tissue, resembling carcinoma, but the biopsy revealed that there was no tumor, but that instead of the surface covering there was only necrotic tissue. The concurrence of this necrotic process with the ulcerations on the mouth and nose and with the pneumonic process was now considered as indicative of a serious generalized disease and agranulocytosis was thought of. The examination of the blood corroborated the assumption of the existence of a disease of the blood; however, it was found that not only the leukopoiesis but also the erythropoiesis was seriously impaired. The diagnosis of septic abortion proved erroneous, for the genital hemorrhages were caused only by the ulcerations on the portio vaginalis. In the conclusion the author expresses the opinion that the ulcerative processes on the skin and mucous membranes and especially those on the portio vaginalis were symptoms of a severe generalized impairment of the hematopoietic system.

Polska Gazeta Lekarska, Lwów

11: 21-40 (Jan. 10) 1932

Pathogenesis and Immunity in Infections of Air Passages (Influenza, Pneumonia). K. Lewkowicz.—p. 21.
*Experimental Smallpox Vaccination. Anna Eljasz.—p. 26.
Clinical Value and Nature of Davis Reaction. S. Brückner.—p. 30.
*Clinical Study of Hemorrhagic Diathesis (Hemophilia). A. Landau and W. Hejman.—p. 32.

Experimental Smallpox Vaccination.—Eljasz, in the macroscopic and microscopic study of changes produced by the smallpox virus in animals, found that the guinea-pig is the animal of choice for experimentation. Simultaneous epidermal and intradermal application greatly hastens the course of the disease. Histologic changes are recorded daily until all the symptoms disappear. The changes are those of simple allergy. The epidermal method produces symptoms similar to those found in human beings but the course is shorter; the intradermal method is followed by negligible changes and no degeneration of the epidermis. Both methods produce allergy.

Clinical Study of Hemorrhagic Diathesis (Hemophilia).—Landau and Hejman divide hemophilia into three distinct forms: (1) the form due to reduced coagulability, (2) the form due to reduced blood platelet count, and (3) the form due to capillary changes. The first class includes all cases of hepatic origin: icterus, tumors of the liver and biliary passages, inflammatory conditions of the bile ducts and pancreas, atrophy, and syphilitic and hypertrophic cirrhosis. The platelet type makes its appearance usually when the platelet count falls below 30,000 per cubic millimeter, regardless of the type of the primary disease. Hemophilia due to capillary changes (Henoch-Schönlein) was observed in chronic endocarditis and kidney diseases when uric acid reached above 3 Gm. per thousand cubic centimeters of blood. The authors introduce a classification of hemophilia into apparent and concealed forms. This is motivated by the fact that frequently far advanced changes do not give hemorrhagic symptoms while others with insignificant deviations from normal are marked by severe hemorrhages. The class that is attended most by hemorrhages is the vascular type, and the other two classes become apparent after the vascular system becomes impaired. The symptoms of hemophilia are in direct relation to the degree of relaxation and dilatation of capillaries.

Bibliotek for Læger, Copenhagen

123: 527-571 (Dec.) 1931

*Inguinal Herniotomy: Two Hundred and Thirty-Six Herniotomies Without Transplantation of Cord with After-Examination of Two Hundred and Twenty-Four Cases, Together with Remarks on Methods of Herniotomy and Results of These. J. M. Wollesen.—p. 527.

Inguinal Herniotomy.—Wollesen's statistical survey of late results after the most usual methods of herniotomy, as published in the world literature, shows the average number of relapses in indirect hernia to be 5 per cent; in direct, 15 per cent. After-examination in his 224 cases showed permanent results in 98 per cent. His method without transplantation of the cord, a combination of several methods, is applicable, he says, only in indirect hernia. The treatment of the sac and the closure of the abdominal opening are of especial importance. According to the literature those methods are most likely to give permanent results which do not disturb the muscular function of the inguinal canal and which call for suture of fascia to fascia and muscle to muscle. In direct hernia the method of choice is a plastic operation of the rectus which avoids (1) weakening the function of the abdominal muscles, (2) sewing muscle to fascia, and (3) the danger of producing a femoral hernia by traction on Poupart's ligament. Bilateral hernia should apparently not be operated on in one sitting.